This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

265

REPORT

OF

E. B. BORRON, STIPENDIARY MAGISTRATE,

ON PART OF THE

BASIN OF HUDSON'S BAY

BELONGING TO THE PROVINCE OF ONTARIO.

Printed by Order of the Legislative Assembly.

Z bind

Toronto:
PRINTED BY C. BLACKETT ROBINSON, 5 JORDAN STREET.
1883.

7

REPORT

OF

E. B. BORRON, STIPENDIARY MAGISTRATE,

ON PART OF THE

BASIN OF HUDSON'S BAY

BELONGING TO THE PROVINCE OF ONTARIO.

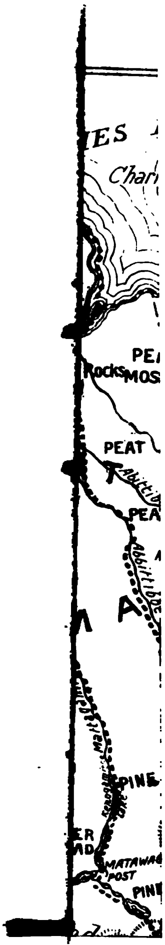
Printed by Order of the Legislative Assembly.

Toronto:
PRINTED BY C. BLACKETT ROBINSON, 5 JORDAN STREET.
1883.

CONTENTS.

PAGE.

Introductory 3
Topography 7
Climate 12
Agricultural Resources 13
Timber 18
Mineral Resources 30
Other Resources 32
Development and Settlement 38
Social Condition 39
Administration of Justice 41
Conclusion 43



12.

r, in
and

the
ight

TORONTO, 6th December, 1882.

THE HONOURABLE O. MOWAT,
Attorney-General :

SIR,—I beg respectfully to submit herewith my report for the present year, in reference specially to the Territory north of the Height of Land claimed by, and awarded to, the Province of Ontario.

In this report I have also incidentally given some information in reference to the topography and resources of an extensive and almost unknown region south of the Height of Land which may, I hope, be of more or less interest and value.

I have the honour to be, Sir,

Your most obedient servant,

E. B. BORRON,
Stipendiary Magistrate.

REPORT

OF

E. B. BORRON, ESQ., STIPENDIARY MAGISTRATE,

ON THAT PART OF THE

BASIN OF HUDSON'S BAY

BELONGING TO THE PROVINCE OF ONTARIO.

Having obtained permission to prosecute further explorations in the so-called *disputed territory* north of the Height of Land, I took passage on the steamer "Manitoulin" from Collingwood to Blind River, on the 17th of May last.

My intention was to proceed to the mouth of the Mississagua river some four miles west of Blind River, and after completing my arrangements, to ascend that river to the Hudson Bay Company's Post at Green Lake, and from thence continue my journey over the Height of Land to "Flying Post." In the course of my explorations last year, I had ascertained that there was a practicable, though rarely travelled canoe-route from Flying Post to Green Lake, and as I was aware that there was a tolerably good canoe-route from Mississagua Post to Green Lake, I felt confident that there could be no insuperable obstacle to prevent my going through that way, if I could only obtain competent guides. On my arrival at Flying Post, I purposed descending the Ahkuckootish or Ground-hog River to its junction with the Mattagami or south branch of Moose River, and thence down that river to Moose Factory. From the northern limit of the surveys for timber berths, to the junction of the Ahkuckootish and Mattagami Rivers upwards of two hundred miles, this route would lead me through a new and almost unexplored country, and I hoped by adopting it, to obtain information of more or less value and importance to the Government.

As is generally known, the steamer took fire in Manitowaning Bay, and was burnt to the water's edge. In common with all those of my fellow passengers who were fortunate enough to escape, I lost everything I had on board. As this included the whole of my outfit, instruments, maps, and supplies, with the exception of flour, pork, and a few other stores which had been sent on by another boat, it is needless to say that such an unforseen misfortune not only put me to much inconvenience but was the occasion of a good deal of delay, as well as expense.

Much difficulty was experienced in replacing many indespensable articles that had been lost, as well as in obtaining suitable guides and voyageurs. I had expected to procure a guide at Green Lake who would be able to pilot us from thence to Flying Post, but I found that the Hudson Bay Company's Post at Green Lake would be closed and the Indians all dispersed before I could arrive there.

It was thus the 22nd of June before I was in a condition to make another start. It was some consolation, however, to find (as we afterwards did), that owing to the flooded condition, and very strong current in some of the stretches of the Mississagua River, it would have been a very difficult matter indeed, if not impossible to have ascended the river in our heavily laden canoe much earlier in the season.

It may be well to preface what I have to say of the various resources of the country, with a short sketch of the route followed not only going to Moose Factory, but returning: This will be very brief as many particulars will be supplied when I come to treat of the "timber resources" of the territory.

On the eighth day we reached Green Lake and on the eleventh of actual voyaging, we arrived at the Height of Land. During our ascent from Lake Huron we had been compelled to make twenty-five portages varying from a few yards to nearly three miles in length. The rise from Lake Huron to the watershed on the Height of Land is, I think, between nine hundred and a thousand feet. The river below Green Lake flows with a very strong current rendering its ascent exceedingly slow and laborious. Above Green Lake the route passes for the most part through lakes, small rivers, and creeks, so small indeed as sometimes barely to permit the passage of a canoe. Lake Winnibeegon is the source of the Mississagua River. Our route, however, passed a few miles to the eastward of that lake.

The Height of Land portage termi ake called Wau-qua-ma-gaming or Clear-water Lake. It is five or six miles nd the source of the Ahkuckootish or Ground-hog River, one of the larg es of the Moose. This river was followed for eighty miles and brought us o fteenth day to Flying Post. Some time was spent in explorations and obtai ion in reference to that part of the country.

The navigation of the Ahkuckootis w Flying Post was reported to be both difficult and dangerous. I was fort er, in obtaining, through the kindness of Mr. Thomas Moore, the officer in e services of George and Henry M'Kay, said to be the best "bowsman" an" on the river.

Leaving Flying Post we passed safel n the iver to its junction with the Mattagami, which was reached on the twentieth actual voyaging. The distance from Flying Post to the junction is, I think, a lit one hundred miles. Pursuing our journey down the Mattagami, another day suffice take us to the Long Portage. In three days more, or on the twenty-fourth d o the junction of the Mattagami and Missinaibi rivers. This last is sometimes nswick River. Below this point the united streams are known as the Moose following day we arrived at Moose Factory, thus completing the trip from to James' Bay in twenty-five days without reckoning detentions from bad w rwise, or the time spent in explorations. The entire distance by this route he bends and turns of the rivers is roughly estimated at about four hundred les. In a straight line, or to use a common expression, "as the crow flies, e is only about three hundred and fifty miles.

Upwards of sixty portages had to b ngest of which was three-and-a-half miles. In addition to these a number were necessary, or in other words part of the baggage and supplies had d and carried over certain portages, while the canoe thus lightened was tal remainder up or down the rapids. The total rise from Lake Huron to the Height of Land is not less, I think, than nine hundred feet and the fall f James' Bay or the level of the sea about fifteen hundred feet.

Having remained at Moose Factor as necessary, and obtained through the kindness of Mr. Cotter such furth ere required, we left on the 1st of August on our return homeward.

My intention was to re-ascend the Moose and Mattagami Rivers to Matawagamingue Post. The distance from Moose Factory to the junction of the Ahkuckootish and Mattagami Rivers is about one hundred and two miles, and from thence to Mattawagamingue Post about one hundred and sixty miles. I had been informed by Mr. Moore of Flying Post that there was a practicable canoe route from Matawagamingue to La-cloche Post, on Lake Huron, that it passed through Whitefish Lake where the Hudson's Bay Company had a post, and thence down the Whitefish River to Lake Huron, that there were a great many portages and some small creeks to be passed, but no very formidable difficulties to be apprehended. He had once travelled this route, when little more than a boy some forty years ago, and could only tell me thus much in reference to it. As it promised to lead me through a new and almost unknown country I determinded to follow this route if possible. .

The route from Moose Factory to Matawagamingue having been travelled over and described by both Dr. Bell and myself, I need only say that sixteen days of hard and unremitting toil cheerfully borne by my voyageurs, sufficed to take me to Mattawagamingue Post, where I met with a cordial welcome from Mr. Rae, the officer in charge.

Here my Flying Post men, who had well sustained their character as guides, left me for their homes. Flying Post is, I should say, not more than fifty miles from Matawagamingue in a straight line, and in a north-westerly direction. The canoe-route, however, is much longer. It will be remembered that I passed over it last year and estimated it roughly at eighty-five miles, the number of portages required in that short distance being not less than twenty-two.

It was now necessary to obtain two other voyageurs, one of whom at all events should know the route I wished to take, as far as White-fish Lake, if not to La-cloche. In this we were dissappointed; notwithstanding the anxiety of Mr. Rae to accommodate me, he was unable to procure a guide at or near the post. He, however, sent a young man with us who knew the way nearly to the Height of Land, where we should find some Indians, one of whom he expected would be willing to accompany us.

Leaving Matawagamingue, the third day brought us to "A-jau-ni-gam-ing," a lake about seven miles in length, where the Indians we were in quest of have their hunting grounds. Here we found the shanties, and clearings, on part of which potatoes were growing nicely. But the only living thing at the place was a fat little heifer about a year and a half old. Where the Indians had gone we were unable to tell, so that all we could do was to wait and see if they would return. As there was a quantity of fresh venison hanging up in one of the wig-wams, we came to the conclusion that we would not have to wait long. In this prognostication we were quite correct, for on the afternoon of the following day we were gratified with the sight of five small canoes coming down the lake with the Indians we wanted. The man Mr. Rae expected to go with us did not feel able to undertake the trip, but fortunately his son knew the way and agreed to accompany us as far as La-cloche. After waiting another day to allow him to get ready, we renewed our journey on the 23rd of August. The Height of Land is not more than two miles from the south end of this lake, and was reached by means of several short portages separated by little lakes or ponds.

The elevation of the summit is nearly the same, I think, as that on the Mississagua route, say about one thousand five hundred feet above the level of the sea. The distance from Mattawagamingue to the Height of Land by this route is, I think, about forty-seven miles. In a straight line, however, I should guess the distance at not more than forty miles, and that in a direction nearly south. From Moose Factory to the Height of Land Portage following the deflections will be about three hundred and ten miles, but not more than two hundred and seventy-five miles in a straight line.

We now began the descent toward Lake Huron, passing through several small lakes and creeks, with frequent portages for some five or six miles. We then arrived at the upper or northern extremity of a large lake called Monabing, which is not laid down on any of the maps in my possession. It is from twenty to thirty miles in length, and of variable width, but probably not less than two or three miles on an average. It lies north and south and through it our route ran in a southerly direction for some twenty-five miles. The River Monabing flows from the extreme south-east corner of this fine lake. Our next stretch was down the Monabing River itself for forty miles, still in a southerly direction, to a lake, called by my guide Ma-zin-an-wa-ning.

In the first thirty miles sixteen portages were necessary, the longest of which was about a mile. This valley, trough or gorge, through which the river pours its waters has been, as I believe, excavated out of the solid rock by ice during the glacial epoch or period. It is bounded by rocky ridges from one hundred to two hundred and fifty feet in height on both sides. These terminate about thirty miles below Lake Monabing, and the river issues into what has probably been a part of the lake below. Through this level country the course of the river is very serpentine and the current moderate. Two portages only were made, one of which was rendered necessary by drift wood which had filled up the channel for some distance.

At the lower end of the gorge (it can hardly be called a valley) just referred to, the ridge rises on the east side to the height of two hundred or two hundred and fifty feet, and my guide informed me that in clear weather Lake Huron was visible from the top. We ascended it and obtained a fine view of the surrounding country, more particularly to the south and east. My guide pointed out to me the position of Lake Nipissing, Whitefish Lake, Lake Huron, when visible, and of Lake Ma-zin-an-wa-ning. He also indicated the direction of La-cloche, all as I had afterwards reason to believe with surprising accuracy. Looking back to the north, the course of the gorge or glacial trough through which we had come, could be clearly traced, and its glacial origin more than surmised. Nor could I help wishing that my friend Mr. Garden, of the Canadian Pacific Railway Survey, had been there to judge of the feasibility of this as a route for the main trunk line to connect with the surveys of Messrs. Gamsby, Ramsay and other civil engineers on the staff of the Canada Pacific Railway, north of the Height of Land. Messrs. Ross and
Garden had preceded me up the Missis this spring in the hope of finding a
route that way, but had not, as I underst er parties, been successful.

I may as well mention here what I o ed afterwards, that the lake below,
through which the Monabing flows, a zin-an-wa-ning, is that called Ver-
milion Lake and represented as su accurately, on the departmental
maps. Thus Lake Monabing instead erroneously supposed the source
of the Whitefish River, is really the sour Branch of the far greater and more
important Spanish River. Again on th l map of 1880, or "Topographical
Plan of the North Shore of Lake Huro fesses to show recent surveys, this
east branch is represented as an appa ficant stream barely traceable for
many miles above its junction with ch in township No. 98, whereas
this east branch, if not the main river e from its size as far north even as
Monabing, much the largest and most ibutary of the Spanish River, and
should be represented as such. I am pe nstrumental surveys of most of our
larger rivers and their tributaries with or near their sources, would be of
great value both to the Government an supplying as it would valuable in-
formation in reference to the soil, timbe sources of the Province, and afford-
ing the practical explorer, whether he b for minerals, timber, or even for a
homestead, invaluable aid and assistanc

Lake Ma-zin-an-wa-ning, or Vern uld say about eight or nine miles
long, reckoning to the first rapid at its I did not however see the west end
of the lake, from where we entered it a nger. The width nowhere exceeds
a mile. We have now come to rocks o formation, and unlike the lakes on
and near the Height of Land in the L n, the longer axis of this lake runs
nearly east and west. The Monabing on the north side and about two or
three miles as I think from its western or "the Vermillion," (but "Mona-
bing" is a much better name) leaves aga n extremity. Our route was down
this river for some ten miles. The av or course roughly taken is I think
about south-east. In this stretch seve ges were necessary. The fall from
Vermilion Lake to the foot of the sev rapid, which is called "the Matta-
gami," also roughly estimated, is about n e the branch of the Canadian Pacific
Railway from Callendar on Lake Nipi river. Here too we saw the river
for the last time. Our guide took an easterly course up a narrow lake for about three miles to a point on the south side where there was a portage. The lake extended some miles still further to the eastward. This portage was about a quarter of a mile long and terminated at a small clear water lake, apparently half a mile in width and three quarters of a mile to a mile in length. Crossing this in a south-easterly direction we came to another portage, a little longer than the last, which brought us to the Honourable Hudson Bay Company's Post, on Whitefish Lake. Here I ascertained from Mr. Ross, the officer in charge, that the lake which my guide called Ma-zin-an-wa-ning was Vermilion Lake, and *that its waters* flowed into the Spanish and not into Whitefish River, as I had supposed.

I also discovered that where this route via Whitefish Lake, strikes off eastward below the last or Mattagami Rapid, the River Vermilion (or Monabing) turns abruptly to the south and south-west, becoming ultimately what is known as the East Branch of the Spanish River.

There is an Indian village on Whitefish Lake some two miles from the Post, and the route from thence via Whitefish River to Lake Huron, is too frequently travelled and the country too well known, to require any particular notice or description. The length of this stretch is, I should say, about forty-five miles, in the course of which some nine or ten portages are necessary. The total distance from the Height of Land to the mouth of Whitefish River, I estimate at about one hundred and thirty-six miles, and from James' Bay to Lake Huron four hundred and forty-six miles. In a direct line, however, the distance from the mouth of Whitefish River to where this route crosses the Height of Land will not probably exceed one hundred miles, and to Moose Factory three hundred and seventy-five miles. The number of days of actual voyaging was twenty-seven, as against twenty-five days by the Mississagua route. Eighteen miles more in a westerly direction along the shores of the Georgian Bay took us to the Honourable Hudson Bay Company's post at La-cloche. We thus left Moose Factory on the first of August and reached La-cloche on the first of September. I had expected that the difficulties besetting this route would have been much greater, and that a considerably longer time would have been required for the trip, but was fortunate in having good men, a favourable season as regarded the height of the water in the rivers and creeks, and if not fewer at least shorter portages than I anticipated.

At La-cloche my guide Louis and voyageur James, from the other side the Height of Land, were paid off, and supplied with a canoe and provisions for their return home. Thereafter I proceeded to Mississagua (my starting point) and paid off the two men, Robert Nolin, of Sault Ste. Marie, and Robert Nakanee, of Mississagua, who had accompanied me throughout, and had proved themselves good and reliable voyageurs. I also settled with Mr. Edward Sayer, fur-trader there, but for whose influence with the Indians and willing aid and assistance, I should not have been able to obtain guides to take me over the Height of Land to Flying Post.

This introductory narrative with the accompanying map, will show with sufficient precision I hope, the route which I have followed.

I shall now under appropriate heads, give such information in respect to the territory in question as I may have been able to obtain from personal observation or otherwise.

TOPOGRAPHY.

The leading physical features of the territory claimed by Ontario have been already so fully described in former reports, that little remains to be said on that subject.

Since my last report however, the Report of Progress of the Geological Survey for 1879-80 has come to hand. In it there is an admirable description of Hudson's Bay, and the regions lying adjacent thereto, by Dr. Bell, Assistant Director of the Survey, than whom, no one is better informed on the subject, having explored in an open boat no inconsiderable portion of the bay, as well as crossed it from York Factory to Hudson's Straits, in the Honourable Hudson Bay Company's ship. I have therefore much pleasure in quoting from the report in question, p. 27, C, *et seq.*, where under the head "General Account of Hudson's Bay," Dr. Bell says: "In the popular mind Hudson's Bay is apt to be associated with the Polar regions; yet no part of it comes within the Arctic Circle, and the latitude of the southern extremity is south of London. Few people have any adequate conception of the extent of this great Canadian sea. Including its southern prolongation, James' Bay, it measures about one thousand miles in length, and is more than six hundred miles in width, in the northern part. Its total area is in the neighbourhood of five hundred thousand square miles, or upwards of half that of the Mediterranean. It is enclosed by the land on all sides, except the north-east, where it communicates by different channels with the outer ocean. The principal or best known of these is Hudson's Strait, which is about five hundred miles in length, and has an average width of about one hundred miles.

"Hudson's Bay, which might have been more appropriately called Hudson's Sea, is the central basin of the drainage of North America. The limits of this basin extend to the centre of the Labarador peninsula, or some five hundred miles inland, on the east side, and to the Rocky Mountains, or a distance of one thousand three hundred miles, on the west. The Winnipeg basin constitutes a sort of out-lier of the region more immediately under notice, since the waters drain into it from the north, south, east and west, and discharge themselves by one great trunk, the Nelson River, into Hudson's Bay. The southern-most part of this basin, namely, the source of the Red River, extends down nearly to latitude 45°. The head waters of the southern rivers of James Bay are not far to the north of Lake Huron, while one of the branches of the Albany rises within twenty-five miles of the north shore of Lake Superior. Including the Winnipeg system, the basin of Hudson's Bay has a width of about two thousand one hundred miles from east to west, and a length of about one thousand five hundred miles from north to south, and its dimensions approach the enormous area of three million square miles. Over a great part of this region there is a temperate climate, and although the soil of much of it is comparatively barren, yet large tracts are very fertile. The numerous rivers and
lakes of the first class, embraced within , will prove of great value in the
settlement of the country. Both the ba are remarkably free from rocks
and shoals, which might interfere with t gation. The groups of islands near
the east side of the bay are surrounded , and a wide channel leads up the
centre of James' Bay. Fortunately the the great bay, which is the portion
which may hereafter be frequented by entirely without shoals, reefs or
islands. The depth is very uniform over ay, and nowhere does it present any
great irregularities. It averages about oms throughout, deepening to one
hundred and upwards in approaching th udson's Straits, while in the strait
itself the soundings along the centre va one hundred to upwards of three
hundred fathoms. The bottom appears t ost everywhere of boulder clay and
mud. Near the shores a stiff clay, afford ding ground for anchors, is almost
invariably met with on both sides.

"James' Bay begins at Cape Jones side, and Cape Henrietta Maria on
the west, and runs south about three hu miles, with an average breadth of
one hundred and fifty miles. The east n's Bay, including its southern pro-
longation is known as the Eastmain coa Cape Jones and Cape Dufferin, on
the Portland promontory, and again in ape Wolstenholme, at the termina-
tion of this coast, the land is high and ts attaining an elevation of nearly
two thousand feet above the sea. The e south-west side of the main bay,
as well as that lying to the west of Ja w and generally level, with shallow
water extending a long distance out fr th sides of Hudson Strait are high
and rocky, but the northern is less pre e southern.

"Of the numerous rivers which ru 's Bay from all sides, about thirty
are of considerable magnitude. All th r upon the Eastmain coast appear
to flow in a uniform course directly we o one another, and as the height of
land in the centre of the Labrador pe hest inland towards the south, the
rivers which fall into the southern par are the largest, and the remainder
become progressively smaller as we go rous streams converge to the head
of James' Bay from all points southw and west line passing through its
southern extremity. The Moose, abou is the principal of these. On the
western side, the Albany and the Chur the longest, but the Nelson, with a
course of only about four hundred miles, harges the greatest body of water into the sea. Indeed this huge artery of the Winnipeg system of waters may be considered as one of the greatest rivers of the world. Few of the rivers of Hudson's Bay afford uninterrupted navigation for large vessels to any great distance from the coast. During the season of high water shallow draft steamers might ascend the Moose and two of its branches for upwards of one hundred miles. Hayes River and two of its branches might also apparently be navigated by such craft in the spring, to points about one hundred and forty miles inland, and the Albany for nearly two hundred and fifty miles; while larger steamers might ascend the Nelson for seventy or eighty miles from the open sea. The

Nelson is the only muddy water river entering Hudson's Bay. Most of the others have a slightly brownish tinge, but their waters are perfectly wholesome, and contain only very small quantities of foreign matter. The Churchill which is the second largest river of Hudson's Bay, is a beautiful clear water stream, somewhat larger than the Rhine. It is remarkable for having at its mouth a splendid harbour, with deep water and every natural advantage for the purpose of modern commerce.

"The only harbours on the west side of Hudson's Bay are those formed by the mouths of rivers, but none of them, with the exception of Churchill Harbour, can be entered by vessels drawing more than ten or eleven feet, and only at high water, even by these. The Nelson may form an exception to this. Most of its estuary becomes dry at low tide, but a channel runs through it near the centre, as far as the head of tide-water. I sounded this channel in a number of places in 1878-79 and '80, and although an average depth of about two fathoms at low water was found, continuous soundings throughout might have shown interruptions or shallower water in some places. As stated in previous reports, there is a section at the head of tide, or between the tidal portion and the regular inland channel of the river, in which not more than ten feet of water were found. This may extend for about two miles, above which an apparent continuous channel, with a depth of about twenty feet, according to our soundings, extends to the lowest limestone rapid, which is the first break in the navigable part, and is between forty and fifty miles from the head of tide, or from seventy or eighty miles from the open sea. If the section referred to were deepened, steamers coming in from sea might enter this part of the river and find perfect shelter, or even proceed up the stream to any point below the rapid referred to. In continuation of the channel running down the estuary, a 'lead' of deeper water extends out into the bay, and forms the 'North River,' or 'York Roads,' with excellent anchorage. The Churchill, unlike all the other rivers, has a deep, rocky and comparatively narrow mouth, which can be entered with ease and safety by the largest ships at all stages of the tide. On the point at the west side of the entrance of the harbour stands the old 'Fort Prince of Wales,' which is probably the largest ruin in North America. Although occupying a commanding position, and mounting about forty large guns, it was surrendered without firing a shot, to the French Admiral La Perouse, who destroyed it in 1772. The ruins of this large fort are shown in the accompanying woodcuts, taken from photographs. Along the west coast the rise and fall at spring tides amount to about eleven or twelve feet, on an average, and is pretty uniform, diminishing somewhat towards the south. It is greatest at the mouth of the Nelson River, where it amounts to about fifteen feet. The tides are lower all along the east side of the bay. In Hudson's Strait there is a very good tide, according to the report we have received of Acting Staff Commander J. G. Boulton's reconnaissance during the past summer. Geologically, the basin of Hudson's Bay, excluding the western or Winnipeg division, lies within the great Laurentian area of the Dominion. Cambro-silurian rocks, resting almost horizontially upon these, form an irregular border along the south-western side of the bay; and in the valleys of some of the rivers they extend inland from one to two hundred miles. To the south and west of James' Bay Cambro-silurian are overlaid by Devonian rocks, which here occupy a considerable area. The long chains of islands which fringe the east coast for nearly three hundred miles to the northward of Cape Jones, and also the main land in the vicinity of Richmond Gulf, are composed of bedded volcanic and almost unaltered sedimentary rocks, resembling the Nipigon series of the Lake Superior region, which may be of Lower Cambrian age. On the western side of the bay, from Churchill northward, quartzites and other rocks, which may also belong to the Cambrian system, appear to be largely developed. Valuable minerals may be looked for on this coast. The extensive level region around the south-western side of the bay, is overspread with a great sheet of boulder clay, which is generally covered by the modified drift. The rocks of the outlying or Winnipeg division of the basin comprise an extensive series, ranging from the Laurentian to the Tertiary."

That portion of the coast of James' Bay which forms the frontage of the territory claimed by us, is low and shallow. From the eastern boundary to the western, with a frontage of more than one hundred and fifty miles, there are no harbours for vessels drawing more than ten feet of water. Vessels, however, drawing ten feet or under, can enter and ascend both Moose and Albany Rivers, as far as the Factories when the tide is at its height.

All the sailing craft employed at Moose Factory and I think, also those at Albany, even to schooners of ninety or one hundred tons burden must, at the approach of winter, be hauled up out of the water on to the banks some twenty feet at least above the river, to escape damage if not positive destruction when the ice breaks up in the spring.

The only deep and safe harbour that I know of, is at the north-eastern extremity of Charlton Island, some sixty or seventy miles from Moose Factory, and nearly north of where our eastern boundary is supposed to be. This was described in my second report.

From James' Bay the land rises slowly towards the south at the rate of about three feet in a mile, as we ascend Moose River and its branches, until we approach what are known as "the long portages," distant from eighty to a hundred and twenty miles from Moose Factory, where the inclination increases considerably. This belt is a vast plain, the far greater portion of which is covered with what the natives call muskego or muskegs, but known to us as peat-bogs or mosses.

Underlying the peat, clay is almost invariably found wherever the bottom can be reached. This clay, as seen on the points hrust down into it, is a bluish gray colour. As seen in the banks of the r vers it is a light gray, sometimes a drab colour. The latter is more commo d belt or zone above the long portages, and with stones of older rocks gen fragments of fossiliferous limestone from the Devonian beds to the north. y also frequently contains boulders and stones of Laurentian, Huronian an Both are calcareous, and therefore what may be called marls.

Below these in the lower belt or zo itory a tough blue or slate coloured clay is met with. It often contains mar very few stones or boulders. Lime enters so largely into its composition, th ciently indurated, it might be fairly classed as a limestone. Sand in the form nd ridges is occasionally met with, but more generally it appears in a laye f no great thickness in the banks of the rivers, resting on the clays. Th ock in the lower belt is rarely seen, but where exposed is generally found to imestone. No hills whatever occur in this lower belt, and the timber is con strips along the water courses, and to islands in the larger rivers.

Referring to the country lying bittibi River on the east, and the Missinaibi River on the west, although en rise of from three to four hundred and fifty feet in twenty miles at tages, and although too, there is a great deal of rock exposed in the botton the rivers, still very little rock is met with elsewhere, being for the most vered by the clays of the boulder or drift formation.

The country however, continues or flat, and notwithstanding a perceptible tendency to assume the form ere and there, as we advance, the natural drainage is insufficient, and ll overspread large tracts of what would otherwise be good land. No de the character of the surface takes place until we approach the 49th parall his the surface is not only flat, but there are few if any lakes. South how allel, the country becomes gradually broken and uneven, rising into ridges hundred feet in height, and in the intervals between these we have freq etimes swamps, at others marshes, and not unfrequently areas of good a ck is often met with but generally confined to the banks of the rivers an he lakes.

As we advance towards the south, not only does the country become more broken, until at least one-third of the surface is covered with lakes, but there is a change also in the composition and character of the loose material overlying the rock. The clays or rather clay marls already referred to, give place to sand and gravel. There is a very marked increase too, in the number of boulders, and while there are always some of these erratic stones whose peculiar appearance or mineral composition, enables us to recognise them as natives of the far distant Eastmain coast, by far the greater number, although brought also from the north, have not come nearly so far. Many of them indeed have *been manufactured,* so to speak, almost on the spot, out of material of the ridges of

Laurentian or Huronian rock (whichever it may be) lying immediately and at no great distance to the north of where they now rest.

The character of the loose material on the surface, the rounded and "hog-backed" shape of the hills and ridges, the deep channels and gorges extending for miles in a northerly and southerly direction, quarried by no visible hand or agency out of the hardest of rock, the polished surface in some places, and the numerous parallel and deep scratches in others, afford strong if not absolutely convincing proof to my mind of tremendous erosion. The same evidence confronts us everywhere, not only north of the Height of Land, but over it, and down the southern slope to our great lakes, the very existence of which is in my humble opinion largely if not entirely due to the same mysterious power.

The only agent known to me, that would seem at all adequate to account for the phenomenon in question, is ice. Not ice in the form of icebergs, and impelled only by the feeble force of the winds or even ocean currents, but a solid sheet of ice moving as water does, and as glaciers are known to be capable of doing. This sheet of ice, too, must have been several thousand feet in thickness. Mr. George Dawson, F.G.S., in his able and interesting Report on the Geological Resources of the Region in the vicinity of the 49th Parallel, tells us "that Laurentian and Quartzite erratics were found in abundance to the height of over four thousand feet," on the Three Buttes or Sweet-grass hills at the foot of the Rocky Mountains. As the Height of Land north of Lakes Huron and Superior will not I believe average more than thirteen or fourteen hundred feet above the level of the sea, it is evident that such a sheet of ice if continuous or equally thick, must have covered the Height of Land not less probably than two thousand feet. The great difficulty is to find the power or force which has been sufficient to set and keep in motion (however slow) this prodigious body of ice. That the erosive agent has moved from the north towards the south the rocks themselves afford silent but convincing testimony. That the propelling power has been so mighty as to have been almost irresistible is equally certain. The hypothesis which appears to me most fully to meet all the requirements of the phenomena in question is, that during the long ages of intense cold, known as the glacial epoch, what has been called a " Polar Ice-cap" formed at the North Pole which constantly increasing in thickness, ultimately attained such a vast height that by the sheer force of gravity alone the ice at length began to spread and move in a southerly direction, or from the Pole towards the Equator, overpowering every resistance that the inequalities of the surface even when composed of solid rock could oppose. But whatever the agency may have been, that an inconceivably great quantity of rock has been moved so to speak from Natures quarries in the north, crushed and ground by her mills into gravels, sands and clays, transported hundreds of miles to the south, and then spread out forming immense stores of the raw material for soil in regions more favourable probably to animal and vegetable life than that from which the rock was taken. These are facts which no thoughtful observer who has visited the territory in which these vast operations have been carried on, can question, however uncertain he may be as to instrumentalities by which the work has been accomplished. Further speculation on this subject would be out of place here, but those who may desire it will find much interesting information in two articles by Dr. L. P. Gratacap, entitled "The Ice Age" in the "Popular Science Monthly" for January 1878 and November 1878.

From the 49th Parellel southward to the Height of Land the country although more broken, is better drained, and much more generally timbered than the flat plains to the north. The timber too is more valuable, as red and white pine are now found growing, more particularly on the higher and drier ridges. A great number of the lakes afford striking illustrations of what has taken place in respect of some already, and of a change which all without exception are undergoing, namely drainage, or filling up and conversion into dry land. This conversion is taking place most rapidly in respect of those lakes through which the larger rivers flow and is brought about in two ways. In the first place these rivers bring down vast quantities of sediment which settling in these lake basins, gradually fills them up. And in the second place the rivers are in many instances clearly seen to be cutting through and destroying the natural bank, reef or other barrier at the outlet or lower end of these lakes, thus permanently lowering, if not draining off the water altogether. The steps in this process are, the conversion of the lake into a marsh, of the marsh into a swamp, of the swamp into dry land. It is a process, which when complete, simple as it may apper, has elsewhere produced no inconsiderable proportion of the finest land in the world, and is doing a like good work here for posterity.

CLIMATE.

The climate of this territory in respect of temperature is one of extremes. The winters are cold—the temperature falling sometimes as low as forty degrees below zero of Fahrenheit's thermometer, and occasionally rising to ninety degrees in the summer even down on the coast. Last year it was on one occasion ninety-four degrees in the shade at Albany Factory and ninety-two degrees at Moose Factory. The mean temperature of the summer at Moose Factory is about sixty degrees, varying two or three degrees above or below that average in different years.

We have unfortunately no record of the temperature at any of the inland posts with
the exception of Martin's Falls on the A and this Post, although more than
two hundred miles up the river, is still n Factory. The Meteorological Ser-
vice, the head office of which is in the C , has collected and is still obtain-
ing most valuable and interesting infor g to the climate of almost every
part of the Dominion. There are two st ection with this service on James'
Bay—one of which is at Moose Factory Albany. Observations have been
made for a short time at Martin's Falls, believe discontinued. These sta-
tions are, however, in the extreme north e territory we claim, and in which
we are naturally most deeply interested. o stations in the central or southern
divisions, and consequently we have no tific data to guide us. The means
at the disposal of the service are doubtless o allow of its Director establishing
and maintaining stations everywhere at think it is very desirable to have
some reliable information in reference to f the central and upper or southern
parts of the basin of the Moose River—e does some thirty or forty thousand
square miles of territory.

Dr. Bell is of opinion that the clim as we proceed northwards from the
Height of Land to Moose Factory, the l of the coast, and other favourable
influences, more than compensating as the difference of latitude. The sea-
son, however, that Dr. Bell made his d markably successful exploration of
the East-Main coast, was I think an un e, and hence it is possible that Dr.
Bell formed a somewhat too high opini te on the coast, although it is un-
doubtedly far superior to what popular rally supposed it to be. I myself
consider that in many very important r mate of the central and southern
divisions of the territory is better than r the coast.

The only place in the territory wh observations have been made in
regard to the quantity of rain, is at , on the coast. The rain-fall *there*
forms no criterion on which to form a s to what it may be in the whole
territory, more particularly in the sou s. From my own observations and
enquiries, I feel safe in saying that, o wet, there is amply sufficient rain
and dew to support the most luxurian At Moose Factory the rain-fall in
1878 amounted to twenty inches, and c ine inches, making the total precipi-
tation of melted snow and rain 26.86 i ar. The number of days on which
rain fell was eighty-four. These were ollows: January 1 day, February 0,
March 1, April 6, May 11, June 9, July 12, August 7, September 19, October 14, November 3, and December 1 day. At Moose Factory, while there is quite enough of rain during the summer months, the rain-fall is I think somewhat excessive in the months of August and September. Possibly this may be confined to the coast. The quantity of snow is much less than that which falls in the Province of Quebec, being not as much as half that at the city of Quebec itself. Nor is the snow-fall at Moose Factory nearly as heavy as at Gravenhurst, Parry Sound, and other places on the north shore of Lake Huron. The healthiness of the climate is unquestionable.

Agricultural Resources.

It is only at the fur trading posts of the Honourable Hudson's Bay Company that any attempt has been made to cultivate the soil. A few of the Indians on the Mattagami River, who trade at Matawagamingue Post, are now trying to grow potatoes, and I trust that they may so far succeed as to induce others to follow their example.

The officers of the company know very little about farming as a general rule. Their lives from the time they were little more than boys, have been spent in the country and devoted to the fur trade. The consequence is that the farming at the inland posts is of a rather primitive and unscientific description, and confined chiefly to the growth of the potato as a field crop. At the larger posts on the coast, particularly Moose Factory where a number of old countrymen are employed, they understand how to grow the potato, and cultivate it well and successfully. But even at Moose very little attention is paid to drainage, and none whatever to the importance of a judicious course, or rotation of crops. The wonder to me is that the land so treated continues to yield any crop at all.

Where the agricultural operations have been so very limited, all that can be said on the subject of the crops that have been grown in the territory has been given in former reports. Having now, however, visited every post but two in the territory, and traversed it in various directions, it may be expected that I should give the general conclusions at which I have arrived on a subject of so much consequence. This I shall do, even if it be necessary to support my opinions by an appeal to some facts which have been already recorded in former reports. Commencing with the cereals, we will take that first which is usually regarded as of the greatest importance and value:—

Wheat.—I am strongly of the opinion that wheat may be successfully grown where the soil is suitable in all that part of this territory lying to the south of the fiftieth parallel of latitude. This opinion is founded on the belief that there is no other part of the world south of that latitude where this grain has not or can not be grown; that the mean temperature of the summer in the territory south of that parallel is amply sufficient to ripen or bring wheat to maturity; and finally, that there are good grounds for believing that wheat has actually been grown at Abittibi House, Flying Post, New Brunswick, on or about the forty-ninth parallel, and certainly at Lac Scul, or Lonely Lake, between the fiftieth and fifty-first parallel. More than this: I was told on the very best authority that Indian corn, a more delicate plant than wheat, came to maturity last year at Osnaburgh House, on Lake St. Joseph, and north of the fifty-first parallel. Even at Moose Factory, in about the same latitude as Osnaburgh and situated on the coast, Dr. Bell tells us that he was informed that a few grains of wheat accidentally dropped, grew and came to maturity. There is hardly any evidence on the other side, certainly none entitled to much weight, and the probabilities are all in favour of the assumption that within the limits stated wheat may be successfully cultivated.

Barley.—The hardier varieties of this grain can be grown further north than any other of the co-called cereals. In Scotland it grows on the Orkney Islands and in Shetland as far north as the sixty-first parallel. In western Lapland the limit is about the seventieth parallel. In Russia it is cultivated on the shores of the White Sea, everywhere south of sixty-six degrees on the eastern side, and of sixty-seven degrees on the western side. In central Siberia the northern limit of the growth of barley is between latitudes fifty-eight and fifty-nine. These facts are quoted on the authority of Mr. H. Stephens, F.R.S., author of "The Book of the Farm," "The Farmer's Guide," and other standard works on agriculture, both in England and America. Mr. Stephens further states "that a mean temperature during the summer of 46°4′ seems to be all that is necessary in Europe for the cultivation of barley, but that in the islands of the Atlantic a temperature three or four degrees higher appears to be necessary for its success.

The territory awarded to our Province north of the Height of Land is situated between the forty-eighth and fifty-second parallels of latitude, or from four hundred to seven hundred miles south of where barley is cultivated even in Siberia. Again, the mean summer temperature at Moose Factory, in the extreme northern part of the territory, varies from fifty-eight to sixty-two degrees, and is probably higher in the central and southern portions. This is at all events ten degrees higher than the temperature,

which according to Mr. Stephens, "*is the only indispensable condition for the cultivation of barley.*" I have seen barley growing at Rupert's House and at Moose Factory on the coast, and at Flying Post and Matawagamingue in the southern part of the territory. I have been told on what I consider good authority, that it has also been grown at New Post, at Abittibi House, at New Brunswick, and at Long Lake House. Thus the evidence is conclusive not only as to the perfect adaptation of the climate, but to the fact that this grain has been actually cultivated in the northern, central and southern divisions of the territory. All that even the most incredulous can contend for, is that the crop is poor or that it sometimes fails to ripen perfectly. Now as regards the latter statement, I have no doubt that in the extreme northern part of the territory, bordering on the coast, it may fail in exceptionally wet and cold summers to come to perfect maturity. But this will not apply to the vast territory to the south, where barley will prove, in my opinion, a good and perfectly reliable crop. Nor do I think it would fail to ripen at Moose Factory or even Albany, if sufficient attention were paid to the drainage of the land, to the selection of the seed, to the time of sowing, and to a proper course or rotation of crops. If the crop be poor (and it is by no means always so) it is in all probability owing
to poor farming rather than to anything ng either in the soil or climate.

Oats.—This useful grain should gro heat will grow. Indeed its growth is
practicable in Scotland, Ireland, and oth where wheat will not succeed. My
own belief is, that the hardier varieties ertainly be cultivated in the greater
part of the territory. I have not seen i vever, at any of the posts I have
visited. I have been told that oats hav at Abittibi House, at New Bruns-
wick, and even at Moose Factory, and rity; but other parties again said
that the crop frequently proved a failu wever, may have arisen from the
causes alluded to under the head of " ba

Rye.—In Germany, Austria, and H ther countries, rye is extensively
grown, and forms the principal bread-stu rge proportion of the population.
Its cultivation does not extend, it is said. as that of barley, but it grows in
regions too cold for wheat, and on soils t andy for any other grain. Its ri-
pening, in the opinion of some writers, c e confidently reckoned upon in cold
regions, than that of any other grain. seen rye growing nor have I ever
heard of any attempt to grow it in this convinced, however, that at Mata-
wagamingue in the southern part of this in the sandy areas on both sides
the Height of Land, this important grai be cultivated with very great ad-
vantage.

Peas and Beans.—These, which are enes or leguminous plants, produce
seeds much richer in nitrogen or flesh-f al, than the grains—wheat, oats,
barley, maize, rye, etc., called cereals. aliment of great value, and are
extensively grown in many parts of the ey are used as food by man and
domestic animals.

The Windsor bean and Kidney erally relished when young and
green. A small variety of bean comm the "Horse bean" is extensively
cultivated in Great Britain, where it is n combination with oats as a pro-
vender for horses. The kidney-bean w is a wholesome and very nutritive
aliment, highly esteemed in this countr , especially by the working classes,
and commonly known under the name ite beans. I have not seen either
peas or beans cultivated as field crop the territory. They are common,
however, in the gardens even on the co Factory peas, kidney-beans and a
small variety of the broad or Windsor bean seem to be unfailing crops. They grow well, and I have no doubt in ordinary seasons will ripen their seed. They are used, **however,** chiefly, if not entirely, in the green state.

The beans appear to succeed better and to be more prolific than the peas, **which are** not always so good. I have been surprised at the invariable excellence of the **crops of** both kinds of beans at Moose Factory. **Nor have** I ever seen **a** better crop of **Dwarf**-kidney beans than was growing at Matawagamingue when I was there last August (**20th**). The bean was of a brown colour, and a little larger than the white haricot. **Mr. Rae** *told me* that they came to maturity and were quite equal to the white bean.

The vetch, a variety of the pea family, grows wild everywhere, but nowhere is it anything like so abundant as on the coast of James' Bay. So plentiful are they on the more sandy parts of the old beaches that I have sometimes thought that the Indians would do well to harvest a lot of them for use, at a pinch during the winter. With a little judicious selection and cultivation this vetch might become of great service in a country, to the climate and soil of which it is so thoroughly adapted.

Potato.—There is probably no food plant that is likely to be of more importance to the inhabitants, present or future, of this territory, than the potato. There is none the cultivation of which has been so thoroughly successful in every part. The admirable fitness both of soil and climate for its growth has been established beyond dispute. No one who has seen the crops at Moose Factory, Rupert's House, New Post, and Matawagamingue, can entertain any doubt on this point. Whether viewed in reference to size, quantity or quality, the crops at Moose Factory and Matawagamingue this year would compare favourably with those in the best potato growing districts in Ontario. They keep all winter in common root-houses, and are sweet and good until the following crop is fit for use. Peaty soil is particularly well suited to the growth of potatoes. As stated elsewhere, there are millions of acres of peat-mosses in this territory, very extensive areas of which can be easily reclaimed, and when this country is settled and means of transport provided, it is within the range of possibility, if not probable, that hundreds of thousands of tons of potatoes may be grown and sent south to supply the wants of the people in the cities of Ontario and the northern states of the Union.

Other Roots.—If in the nearer or more remote future, the breeding of cattle and dairy husbandry be likely to form important resources of this territory, as is by no means improbable, then the fitness of the soil and climate for the growth of root crops is of the greatest consequence. Among these the turnip is entitled to a place in the front rank. I have seen small patches of turnips, usually Swedish, at most of the Company's posts in the territory and believe that on suitable soils, proper culture would ensure large crops of excellent bulbs. The carrot, beet and parsnip can also be grown, but like the turnip have only hitherto been cultivated as garden crops. I know no reason why they should not one and all succeed in the field also.

Green Vegetables.—Cabbages, spinach, lettuce, mustard, cress and radishes are grown without any difficulty. The cauliflower, so tender, as I thought, in respect of frost, appears to be one of the surest crops at Moose Factory, and is sometimes ready for the table as early as the first of August. Potato-onions also grow well, but the season is too short to grow onions of any size from the seed. The cut-worm is the great enemy of the gardener at Moose Factory, as it is in many other parts of Canada, and if the cabbage and cauliflower plants were not well looked after and protected, few would be left.

Fruits.—The only fruits that appear to be cultivated in the garden are the red and black currant and raspberry. The red currant is remarkably prolific. Rhubarb also grows well. Other small fruits, such as the strawberry and gooseberry might, I am persuaded, be raised with little trouble, for they are found growing wild in many places, and perhaps nowhere more plentifully or of finer quality than on the coast. With these we have the wild raspberry, a diminutive variety of blackberry which grows only a single berry on each plant, and a very small kind of cranberry. The Huckle-berry or blue-berry is found in great profusion from the long portages to the Height of Land. Indeed it may be said to abound from the coast of Hudson's Bay to the shores of Lakes Huron and Superior. It was nowhere in greater profusion or of finer quality than on the Height of Land itself. The berries gathered from one measured square yard as an experiment filled a large pint cup. At the same rate, an acre would produce two thousand four hundred quarts of this wholesome fruit. Even allowing that the berries were exceptionally plentiful on the spot in question, it is not the less true that could the quantity of fruit which grows in the country lying between Lakes Huron and Superior and the fiftieth parallel be approximately estimated it would appear simply incredible to those who have not seen the country during the berry season. It would dwarf into comparative insignificance, in my opinion, all the other fruits put together. Without any rich or strong flavour it is a pleasant, refreshing and exceedingly wholesome fruit and may, I think, be eaten in almost any quantity without danger. The natives are very fond of them, and even gather and dry the berries for use after the season is over. But all that man can use is as a drop in the bucket; the almost unreduced bulk of the fruit forms a bountiful provision of Nature for her other creatures. To the beasts of the field and the fowls of the air, and every creeping thing, these millions of bushels of fruit thus left over are as food; to some, perhaps only an agreeable luxury, to all doubtless a source of delight of which we can form no adequate conception. To none of all these, perhaps, is it a greater blessing than to the ant, that diligent and brave little pioneer who precedes man and earth-worms alike by centuries in the important work of ameliorating and preparing the crude soil for the support of higher orders of vegetable and animal life. That an omnivorous animal like the bear should eat or even subsist for a time on these berries seems quite natural, but when we find among its consumers carnivorous animals such as the fox, the marten and the fisher, and such birds as ravens, wood-peckers and ducks, one cannot help feeling more or less surprised.

The only other wild fruit that I shall notice is also a variety of Whortleberry. This is a bush or tree not very unlike the wild cherry in appearance. North of the Height of Land it attains a height in some places of ten or twelve feet, but is generally
about six feet. The fruit grows singly, es or clusters on the tree. It is of
an oblong or pear shape, larger than the ut smaller than the grape. When
ripe it is of a purple or blue colour. It i l has more flavour than the Huckle-
berry, and is preferred by the natives to found all the way from James' Bay
to Lake Huron, but nowhere did I see perfection than on the Mattagami
River. The fruit is not only pleasant a , but the juice would, I am persua-
ded, make an excellent wine, and the tre of cultivation and of a place in our
orchards or gardens.

The High-bush Cranberry and the Hazle- also met with in many parts of this
territory, but in travelling south I did n ny nut trees until I came to Little
Long Portage on the Mattagami River, n hun red miles from James' Bay.

So soon as the Canadian Pacific Ra xtended through this territory, the
gathering of these wild fruits will afford th a lucrative employment, as it does
now to many of those on the north shore ian Bay. Nor to the great mass of
the inhabitants of our cities will an overf dance of such wholesome fruits as
this territory affords in unlimited quanti vise than agreeable, the dearness of
those cultivated fruits which can be exp n countries placing them to a great
extent out of the reach of the families of

Nor is there anything unreasonable ition that a country possessed of a
climate which enables the uncultivated spontaneously such a variety and
abundance of wild fruits, may be capabl eat deal more with man's powerful
aid and assistance.

No attempt has been made yet, so anywhere in this territory, to grow
apples, plums, or cherries. I am incl , however, that these and other
highly prized fruits might succeed in th er, and drier parts of the territory.
I should be much more hopeful of t than on the north shore of Lake
Superior.

On the south side of the Height o ning down in some places to within
a few few miles of Lake Huron, th that for a considerable distance
north is full of lakes. These are n ery deep, one result of which is
that the water heated by the sun's much warmer throughout than
the water of lakes Huron and Superior. temperature of the water of Lake
Monabing at the surface 70° Fah., and at depth it was still not less than 62°
I am of opinion, therefore, that orchards planted on islands or on the warm, dry ridges of bouldery or gravelly soil, lying between such lakes or even to the south of them, would not be likely to suffer from summer frosts, the chief, if not only obstacle to the growth of many valuable fruits. I saw on Whitefish Lake, Indian corn planted in just such a locality as that I refer to, and this circumstance, which I have noticed elsewhere, goes far to convince me that the climate of a wide belt of territory on both sides the Height of Land, between Lake Huron and James' Bay, is so tempered and modified by the warm waters of the numerous small and shallow lakes, which cover probably one-third of

the country, as to admit of the cultivation of many of our most valuable kinds of fruit.

Grasses.—Whatever doubt may remain in the minds of any as to the agricultural value of the country north of the Height of Land in respect of its grain-growing capabilities, there can be none in regard to its fitness to produce the more important roots and grasses. From the Height of Land northward to the coast of James' Bay nothing on the north shore of Lakes Huron or Superior can exceed the luxuriance of the native grasses. These, however, are limited to beaver meadows, alluvial lands along the banks of the rivers, marshes in vicinity of the lakes, and to a broad belt on the southern coast of James' Bay ; where covered with forest, bush or peat mosses, little grass is to be seen.

I have not met with a field of cultivated grass in the whole territory. At those posts of the Hudson Bay Company where cattle are kept, they obtain their hay either from the marshes bordering upon the inland lakes or from the salt marshes on the coast. Some however, of our cultivated grass-seeds have been sown in former times at several of the posts, possibly with the view, rather to improve the pasture, than for hay. Be this as it may, white clover is to be seen at almost all the posts, and red clover, sown some fifteen years ago at least, is still common in the fields at Flying Post. Timothy likewise grows admirably in this territory, being quite able, like the red clover, not only to endure the cold of the winter, but to mature its seed, as is proved by its being still found on portages where the first seeds were accidentally dropped many years ago. These facts though meagre, are important, enabling us, as they do, to form at least some idea of the fitness of this territory for pastoral pursuits.

Cattle.—With one doubtful exception not only man but all the domestic animals usually kept by him enjoy excellent health in this territory. The only exception is the horse, and the only place Albany Factory. Several horses having died unaccountably at this post, the Company have not made any further attempt to keep them there. The cause, whatever it may be, can hardly be the climate, as that differs but little from Moose Factory, where the horses are remarkably healthy.

Cows and oxen are kept at all the principal posts, and I have invariably found them wherever I have been, healthy and in fine condition, pretty good evidence of the salubrity of the climate and excellence of the pasture. At Moose Factory, where some sixty head at least are constantly kept, a certain number are slaughtered every Fall, and are quite fat, although then taken straight from the grass. The cows yield a large quantity of good milk.

Sheep.—There is a small flock of sheep also at Moose Factory. They appear to be of a common and not very large breed. It is necessary to house them at night and watch them during the day, to protect them from dogs, of which numbers are kept by the Indians. They seem to thrive pretty well notwithstanding, and are, so far as I know, subject to no particular disease.

Hogs.—A few pigs, seemingly well-bred, are kept. They are allowed during the summer to run at large on an island opposite the Post, and what they can gather for themselves is supplemented with potatoes and waste from the kitchens. They are thus maintained in good health and growing condition, but cannot be fed up fit to kill without grain or meal in the Fall, which is I presume given to them, for the home-cured hams are exceedingly fine.

Poultry.—It is impossible to keep poultry at or near any of the fur-trading posts unless they are enclosed in a well-fenced yard.. The Indian dogs, unbroken and half-starved, would worry and devour any fowls that were suffered to run at large. But for this the common barn-door fowl might be reared and kept with great advantage. The turkey would do well also with full liberty to range about during summer.

The vast numbers of wild-fowl which migrate to and spend the summer months in this territory affords sufficient proof of its fitness for geese and ducks, both of which might no doubt be easily bred and reared.

In conclusion under this head, the agricultural resources of this territory are, as will now have been seen, various and by no means unimportant. The climate has been shown to be such :—

That we have good reason to believe wheat, oats, barley, and rye, as also peas and beans can be successfully cultivated.

That excellent crops of potatoes and turnips can be grown in any part of the territory, and that other roots such as the carrot, beet and parsnip will in all probability succeed.

That cauliflowers, cabbages, and all the common vegetables raised in the northern part of Ontario can be likewise grown at Moose Factory and at other posts south thereof.

That the cultivated grasses, red clover and timothy, grow luxuriantly, mature their seed and survive the winter.

That wild fruits of various kinds, and valuable of themselves, are spontaneously produced in great quantities, warranting the inference that cultivated varieties may be successfully and profitably grown in the territory.

That live stock, horses, cows, sheep, pigs, and poultry thrive remarkably well in every part of the territory, with the exception of Albany Factory, where horses alone for some unknown reason have not lived.

The soil, as might be expected in a territory so large, is variable, ranging from clay
loams at or near the coast, to light, sand loams towards the Height of Land,
and in some sections very extensive peat- ese peat-mosses are confined chiefly
to the territory lying to the north of nth parallel. The southern limit,
however, of the peat-moss region, is I b nsiderably north of the forty-ninth,
if not even of the fiftieth parallel, w issinaibe Branch of Moose River.
These peat-mosses repose on clay marls, not immediately available for culti-
vation, I have hardly a doubt vast tracts tually reclaimed and converted into
good arable land.

Along the banks of the rivers, eve thern belt, there is a strip of good
land. The islands and river bottoms ha ial soil. Above the junction of the
Mattagami and Ahkuckootish Rivers th bottom land is still more extensive
than below the Long Portage, and much probably flooded for a week or two
in the early spring might be turned to v int as meadows or otherwise, there
being no danger whatever of flooding dence of the spring freshet, caused
by the melting of the snow. As we Height of Land and the country
becomes more broken, the dry ridges wil asture, while portions of the lower
slopes where not too stony, and the ri nay be cultivated. The swamps, if
drained, would frequently make excelle ne marshes will always be more or
less valuable for grass and hay.

I frankly admit that the developm cultural resources of this territory
must be the work of time; that it will r intelligence, experience and energy.
I believe, however, that the people of found equal to the task. If not, I
am at a loss to know where we shall fi vill. But on whomsoever the task
may fall, once opened up by means of ways and the soil reclaimed, there
cannot be a doubt that the agricultura l alone be sufficient to employ and
maintain a large population in comfort, ence.

No one can travel through the U Canada without being struck with
the enormous extent of once timbered been cleared up or reclaimed from
the forest. By far the greater portion has been cut down, piled into heaps
and burnt on the spot, in order to get le object being to clear up and cul-
tivate the land. Another portion of the timber has been used for fuel, either by the owner or others to whom he may have sold it. Lastly large quantities, more particularly of pine, have been cut down, to be hewn into square logs or pieces, or sawn into boards and scantling, commonly called lumber. For this "lumber" there is a rapidly increasing demand both at home and abroad. As regards the land specially cleared with the view to cultivation, there is very little chance of its ever being re-planted or again becoming a forest. Nor is it probable that much of the second description will be allowed to grow up again. Of the third division only, namely that on which the pine and other trees have been cut for lumber, is any considerable proportion of the land at all likely to

be left uncultivated, with the resulting possibility of being again re-clad with forest trees. Estimates have been made of the quantity of pine timber yet remaining in the United States, and of the length of time it may be expected to last. The data, however, on which such estimates are based are so uncertain and fluctuating that little or no reliance can be placed upon them. This much, however, we may feel pretty well assured of: 1st, That the area or reserve of timber land is rapidly dimishing, and will continue to diminish in a still greater ratio; 2nd, That the consumption of timber, already enormous, is rapidly increasing, and must continue to increase almost indefinitely; 3rd, That the best and most accessible timber lands or limits have been and will continue to be the first to be stripped of their timber; 4th, That the cost of placing in the market lumber from inferior and remote limits will hereafter be greater than now or than it has been heretofore; 5th, That as a necessary consequence of these premises, subject to temporary fluctuations and depressions, the price of timber must surely rise.

From all which it may be reasonably inferred that timber lands which from their remoteness, inaccessibility or the inferior quality of the timber, are *now* considered worthless, cannot fail to become in course of time of very great value.

This brings me to a point I am anxious to make and to impress on the Government and people of our Province, namely, the prospective value of the so-called "disputed territory," north of the Height of Land in respect of its timber resources.

In order to this, I shall put what I have to say into the narrative form, commencing at my starting point this season, namely, the mouth of the Mississagua River, which enters Lake Huron a little to the west of the eighty-third meridian. With the exception of some pine still left on the Indian Reserve no considerable body of pine is visible from the river, until we approach the Oak Rapids, about eighteen miles up. Below this there is a greater or less breadth of river bottom land, the timber on which is mostly elm, maple and birch, with a few pine and other kinds of trees. Above the Oak Rapids, and from thence to Long Portage, which I take to be another fifteen miles, there would appear to be a tolerable quantity of good white pine. At and above Long Portage, bush-fires have destroyed most of the timber on the banks of the river, until we come to where Mr. Wright, of Barrie, has been getting out squared timber, about fifteen miles above Long Portage again, or say fifty miles from the mouth of the river. There are eight falls and rapids in this distance, the most formidable of which is that at Long Portage. The Mississagua River is from two to three chains in width and brings down a large quantity of water in the early spring, but it subsides rapidly and is very shallow in the summer. The current runs strong throughout, but is particularly heavy above the long portage. How far Mr. Wright's timber had been hauled before reaching the river at the place above referred to, I cannot say, as we did not go back far enough on the road to see. I did not, however, observe any good pine on or near the banks of the river even at this place. At the Grand Rapid, some fifteen or sixteen miles above where Mr. Wright's timber was brought out, there is a limited area of country lying some five or six miles along the banks of the river which, if not entirely, has in a great measure escaped the ravages of recent fires, and the timber is in consequence superior to any that I noticed elsewhere. A few miles above the Grand Rapid, or say about seventy-five miles from Lake Huron, we enter the first lake. This lake although not now apparently more than four or five miles in length, has I think at one time been very much larger. Like most others situated on large rivers, this lake is being gradually drained or converted into dry land, partly by the sediment brought into it from above, and partly by the wearing away and deepening of the channel at the lower end or outlet. Although this is the first lake on the main river, there are numerous lakes on the smaller tributaries, lying on both sides of the Mississagua. At the upper or northern extremity of this lake the Kid-da-mug or western branch of the Mississagua comes in. This and the White River, which enters from the east about mid-way betweeen Upper Slate Falls and Long Portage, are the two principal tributaries of the Mississagua. Following up the main river eastward for about eleven miles, we come to where the river again forks. One branch, called the Winnibeegon, falls in from the north, taking its rise in a large lake of the same name, near the Height of Land. The other or easterd branch derives its waters chiefly from Green Lake and others lying to the east and north-east. This point is about ninety miles from the mouth of the Mississagua, and there is a portage here called the Shingwauk, or Pine Portage. From a point some four miles above the Grand Rapid to this junction, a stretch of some eighteen or twenty miles, but little pine of any sort is met with. Red pine, however, seems here to be taking the place of white pine. Our most direct route would have been up the Winnibeegon, but that stream is so crooked and difficult of navigation that our guide took the other or eastern branch, which in six or seven miles brought us to Green Lake. This lake is said to be from six to eight miles in length, and four or five in width, but the islands, of which it contains a number, render it impossible to see the whole of it at a glance and thus estimate its size. Crossing it in an east-north-easterly direction, our route led us to a small river, called Round Lake River, which enters Green Lake near its eastern extremity, a little to the eastward of where the old fur-trading post of the Hudson's Bay Company formerly stood. The Post is now situated on another and smaller lake, some three or four miles to the east. From the junction of the Winnibeegon to this point, say fourteen miles, the principal timber is red pine. The trees are sound and healthy apparently, and may average forty or forty-five inches in circumference, although some of the larger ones are as much as sixty inches c three or four feet from the ground.

We now ascended Round Lake Rive ake itself, thence to what is called in Indian, "the Lake that Runs Through." s are situated in one of the narrow glacial channels or troughs alluded to els ig a common feature on or near the Height of Land, and running (as in tl tance) in a northerly and southerly direction.

Our route left "the Lake that Runs T what appeared to be its northern extremity and by a portage three-quarters of th we passed over a ridge nearly one hundred feet in height and intersected tl n Branch of the Mississagua. This stretch, namely from where we left Greei e we meet or intersect Winnibeegon River, I estimate roughly at about ten or t length. It is well timbered throughout chiefly with white and red pine. T attains eight feet in circumference at the butt, red pine four to six feet, whi to six feet, cedar four feet and white birch and balsam about the same. On t f the ridge over which the portage passes and some 1250 feet or more a l of the sea, I saw and measured three white pine, standing within less t ls of each other, which averaged eight feet in circumference at the butt, ve four or five logs each, the lower two if not three apparently free from kn her fault or blemish. With such facts as these before us, it is absurd to c e climate on or near the Height of Land will not admit of the growth of r.

We then ascended the Winnibeegon e were within not more than half-a-mile, according to my guide's statement, gon Lake. At this point a tributary comes from the east, up which our route tch following all the turns and bends of the river is not less I think than tw , for the river is very crooked. If the late Mr. A. P. Salter's map of this ntry be at all correct, however, the distance is not more than fourteen or fif straight line. The course although constantly changing is, on the whole, far as the rivers and lakes on Mr. Salter's map are located from actual ins ey I have no doubt they are correct, but much of his information must have from Indian sources, and I am inclined to think that in some respects, a in the course of the Winnibeegon River the map is incorrect, as it eviden te.

This upper portion of the river robability through what has been in ancient times the bed of one or more ridges which formed the original banks or boundaries of these lakes are rarely if ever seen. The soil on the lower ground where not wet and swampy is for the most part barren and sandy, and it is to this circumstance alone, I think, must be attributed the poorness of the timber and the almost total absence of red or white pine.

My guide informed me that there are a great many red and white pine on the ridges around Winnibeegon Lake. I was sorry that our route did not pass through this lake. I intended examining it on my return from Moose Factory, but as mentioned before my voyageurs anticipated great difficulty in returning this way at a season when the water is usually very low, and I decided to take another route.

Resuming our journey we now left the Winnibeegon River and ascended the tributary or East Branch just mentioned. The width of the stream at this place was not more than about a chain. Its course was very crooked, at first easterly, but becoming after we had passed some few miles, north-easterly, and so continued until about the end of the seventh mile, which brought us to a rapid in which there is a very considerable fall. Here it was necessary to make a portage about one-third of a mile in length. This was the twenty-third portage reckoning from the mouth of the river. Eight or nine miles more on an average course of about north-east brought us to a narrow lake, the length of which, however, was not less than five or six miles, the longer axis lying as usual nearly north and south. This again forms in my opinion a portion of one of those channels before alluded to as having been excavated by the current of ice which enclosing millions of boulders and bearing an inconceivably great burden of stones, gravels, sands and clay, would appear to have forced its way in one vast sheet of unknown thickness over the Height of Land, during what has been called the glacial period. This channel I think may be traced across the Height of Land to the north, and it is by no means improbable that the depression in which "the Lake that Runs Through" is situated some twenty or more miles south in nearly a direct line, may even form another part of it.

The nature of the country and character of the timber between this lake and Winnibeegon River, differs little from that passed through in the preceding stretch up the Winnibeegon itself. The banks of this East Branch are for the most part low and marshy, or otherwise sandy.

Fires too, have run over this section so generally, within the last twenty or thirty years, that Mr. Salter describes it on his map as "burnt country." I do not think however that the marshy, wet, or even the dry, sandy flats bordering on the stream have ever grown much if any white or red pine. Tamarac, alder and willows, have been the principal growth on the wet ground, and Banksian pine on the dry sandy flats, which have, I suspect, also formed the bottom of former lakes. The higher ridges, only seen at a distance on this stretch, have however undoubtedly produced red and white pine of good size and quality.

Our next stretch commences with the lake just referred to. This lake, the name of which my guide did not know, is not more than six miles long, by half-a-mile wide. The ridges on the east and west sides are low, apparently rarely exceeding one hundred feet in height. Nice groves of red and white pine are visible here and there, particularly near the upper or northern extremity. Here we made a portage (the twenty-fourth). This portage starts from the north-eastern extremity of the lake and runs in an easterly direction over a ridge, the summit of which is at least one hundred feet above the lake. It is a mile long and terminates at a very small creek, the water of which comes from the north and flows southward.

The soil on the top of this ridge is a sandy loam and I was pleased to find with trees of other kinds a scattered growth of clean and healthy white pine, from six to seven and a-half feet in circumference at the butt, and running up frequently forty feet from the ground without the vestige of a knot or branch. This was especially interesting as we were now close to the divide or watershed on the Height of Land, and nearly if not quite as high. On the lower ground the soil was peaty, and tamarac and spruce were common, the larger trees being about four feet in circumference.

Embarking on the small creek at the east end of this twenty-fourth portage, we found the water so shallow and the channel so crooked that we had the greatest difficulty in ascending it, for the first mile. It then opened out into a succession of little marshy ponds with shallow connecting creeks for about two miles, during which our course was on the whole northerly and ended at last in a muskeg or peat-moss. Here we came to the Height of Land Portage. This portage (the twenty-fifth since we started) is about three-quarters of a mile in length, and ascending to the height of sixty feet, descends again towards the north nearly if not quite as much, terminating at a good sized lake called Wa-qua-ma-ga-ming or Clear-water Lake. The Height of Land or divide is, I should say, about fifteen hundred feet above the level of James' Bay, to the north, and nine hundred feet higher than Lake Huron to the south, but no reliable estimate can be based on only one or two readings of the barometer.

The distance from the mouth of Mississagua River to "the divide" or watershed on the Height of Land by this route, I estimate very roughly at about one hundred and sixty-five miles. In a direct line however, as shown on Mr. Salter's map, it is only one hundred and five miles.

I did not observe any red or white pine on the last portage, but there were considerable numbers on the same ridge within half-a-mile of where the portage crossed it.

Thus in respect of both climate and soil the whole southern slope from the summit to the very shores of Lake Huron, is beyond dispute, a good pine-growing region.

Turning our faces to the north we once more embark and commence the long descent to James Bay.

Clear-water Lake, or Wa-qua-ma-ga-ming, is the source of the "Ah-kuc-koo-tish" or Ground-hog River. But of this fact neither I nor my voyageurs were aware until some days after. It is about six miles in length, and from half a mile to a mile in width. The longer axis like the lakes immediately south of the watershed pointing nearly north and south. The water as its name would imply is very clear. The ridges forming the shores on the east and west sides are of moderate height, that on the east bearing an irregular but by no means inconsiderable quantity c re is a scattering growth also of apparently good white and red pine on the ut less numerous than on the east. The other trees consist chiefly of spruce, B e, balsam, white birch and aspen. My guide told me that some few sugar maple o r size grow near the shores of this lake, but I did not see them.

On reaching the northern extremity of entered its outlet, a little stream about a chain in width, having a rather and sufficient depth of water at this season of the year to float our canoe n.

Down this stream we took our way four miles, at the termination of which we came to a lake called "Cache e river is very crooked, our course changing frequently as often as ten times The average bearing however of this stretch is north-north-east, or thereabout. first twelve miles is through a marshy and comparatively flat country, which ot marshy appears to be dry and sandy. It resembles indeed the country lying c us to the upper part of the Winnibeegon River, on the south side of the Heig l. No high ridges were seen after we left Clear-water Lake. A low reef of L ock now and then crossed the river occasioning a fall or a rapid around which iged to make a portage, but otherwise rock, excepting in the form of boulde seen. Like the Winnibeegon, the river throughout the far greater part of th ms to flow over what has formerly been the bottom of one or more fresh water the lower half the reefs and ridges are both higher, but nowhere did the a greater elevation than one hundred feet, and rarely so much as that. the whole distance there is hardly a thousand acres in a block over which ot seem to have passed some time or other within the last forty or fifty year tly very few fully grown or large trees are met with. Those that there are c ce, tamarac, Banksian pine and balsam on the drier ground with occasional h aspen, white birch may be seen On the lower and wetter land, alder, wi rarely black ash may be found. Black ash however only appears in the la of the stretch, and the size is not more than from six to ten inches diame observe either white or red pine, until we approached Cache Lake when the visible on rather high ridges to the north-west. In the whole distance from t of Clear-water Lake to Cache Lake, which I roughly estimate at thirty miles bends of the river, ten portages were necessary, the longest of which was a The total fall does not exceed one hundred feet I think, or little more than three feet per mile on an average.

Cache Lake, the beginning of the next stretch or division of our journey is about three miles long, in an east-northeasterly direction, and about half a mile in width. A schistose rock (Huronian) here forms the shore. Near the eastern extremity a small stream falls in from the south. The number of heads of deer and other animals, stuck up on poles, as trophies of the chase, would appear to indicate a good hunting country. Leaving Cache Lake by the river which flows from its eastern extremity, another mile brought us to a rapid with a fall of nearly four feet, which was run successfully.

This was as far as my guide had ever been before. Flying Post was still, as we supposed, a long way off, and as we might miss it altogether, it would hereafter be necessary to proceed very cautiously, for in the event of losing our canoe or provisions in any of the numerous and unknown rapids, it would have gone hard with us, especially if unable to find the post.

Here the river took a strong easterly bend, sometimes opening into and forming small lakes or ponds, at other times contracting to its usual size. It held this course for about nineteen miles, following nearly, as it appeared to me, the strike of the Huronian rocks at or about their junction with the Laurentian. In this stretch five more portages were required, the total fall being seventy-five feet, or say four feet in a mile. The river then finding a passage, turns north, crossing the Huronian ridges, and at the end of nine miles tumbles into a large basin, at the south end of Lake Matagama. In this northerly stretch (though but nine miles in length) five more portages had to be made, and the fall, very roughly estimated, is not less, I think, than 175 feet, or about 19½ feet per mile. The total length of this stretch, reckoning from the upper end of Cache Lake to that of Matagama, is about thirty-two miles, or sixty-two miles from the Height of Land.

Now, as regards the timber. Although red and white pine appeared in some numbers on the ridges near Cache Lake, and a few trees at other points on the route, there is no pine of any importance whatever, until we come within two or three miles of Lake Matagama. The timber, where any, consists mostly of spruce, tamarac, Banksian pine, white birch and aspen. But the fact is, the country has been too generally and recently burnt over, to allow of the growth of large trees of any kind, however favourable the soil or climate might be. The last two or three miles however of this stretch, had not been over-run by recent fires, and there is a good growth of mixed timber, among which I saw white pine and spruce as much as six or seven feet in circumference.

Before we reached Lake Matagama, I had discovered that the river we had been following from Clear-water Lake was really the same as that which below Lake Matagama is called the Ahkuckootish or Ground-hog River, and that it would lead us direct to Flying Post. I had, in fact, ascended this river to a tributary which comes in from the eastward six or seven miles south of Lake Matagama last year on my journey from Flying Post to Matawagamingue Post. Flying Post was now only eighteen miles distant and all doubts as to our being able to find it were removed.

Lake Matagama, reckoning from the termination of the last portage to the end of slack-water about a mile above Flying Post is at least seventeen miles long. In width it varies from a quarter of a mile or less, at the extremity, to as much as two miles elsewhere. Its course or bearing nearly north and south. About seven or eight miles from the upper or southern extremity, it throws off a long arm on the east side. This arm, although sixteen miles in length will not average half a mile in width. The bearing of the longer axis is north-east and south-west. It is very deep, and the shore on the north-west side steep and precipitous. It has every appearance of having been formed by ice, as elsewhere described. The ridges run from fifty to two hundred and fifty feet in height above the level of the lake, and although sometimes bare, are generally covered with a light soil. By far the greater part of this section of the country has been more or less denuded of its timber by fire. Some of these fires date back a generation or more ; others have occurred as recently as last year. There is ample evidence of there having been a fine growth of pine, both white and red, and of the fitness of this part also of the territory to produce good merchantable timber. The outlet of the river is at the extreme north end of the main lake. Here it soon forms a rapid, which can, however, be run by good canoe-men at any season. Half a mile below this rapid on the left hand bank, is the Hudson Bay Company's Post.

Our route since passing the Height of Land, may be briefly summarised, as follows :—1. From the Height of Land to the junction of a large stream from the west, twenty-six miles, with an average course of north-northeast. 2. From the junction of the above stream, four miles above Cache Lake, to the fifteenth portage, a short distance below the junction of a large stream on the south-east side, twenty-seven miles, on an average course of east. From fifteenth portage to Flying Post, twenty-seven miles, average course north to north-northeast ; in all eighty miles by the windings and bendings of the rivers and lakes. In direct lines these distances would be much less.

It may be remembered by some of the readers of this report, that a number of years ago, Messers. Salter and Sinclair, Provincial Land Surveyors, were instructed by the Government of the day, to run an exploration line in latitude 47° 56′ north, starting respectively at Michipicoten River, Lake Superior, and at some point on the Upper Ottawa. It was expected that these two parties would have met, but for some unaccountable reason they failed to do so. I am told by Mr. Thomas Moore, the officer in charge of Flying Post, on the authority of Indian hunters, who have seen both lines, that they did not overlap, but were correctly run and pointing, as they express it, straight for each other, and would have met, or nearly so, had they only been extended a few miles further. This exploration line crossed, I am told, the upper end of Lake Matagama.

Leaving Flying Post with fresh guides the river immediately opened out into a lake some six or seven miles in length and two miles wide, which is called Ahkuckootish, or Ground-hog Lake. In about eight miles, following a north-easterly course we came to the first rapid which might fairly enough be considered the end of the lake, as above that there is little or no current. Below this for the next thirty miles the river pursues a north-north-easterly course It then runs for the most part between north-west and north-north-
west for some ten miles, terminating at th of the Long Rapids. This stretch
from Flying Post to the lower end of the ids is in all, I think, about forty-
eight miles. In this distance there are n pids, most of which were run. It
was necessary to make, however, six por veral short demi-charges. The fall
(like the distance, roughly estimated) ma o hundred and fifty feet.

There has been at one time a great fine red and white pine on Lake
Ahkuckootish, and even now a good d nains on islands, peninsulas and
other parts, that have escaped the fires wh rently made such tremendous havoc
among the forests all over the country. pine too, are seen on the ridges
lying off quite a distance to the east of th e go north the pine decreases, and
after we leave the lake it is not met with , or in considerable quantities any-
where near the river. We saw, however, s nd small groves as much as twenty-
five miles below Flying Post, and one s told me that on the banks of
a lake lying to the west of the river and s es north of Flying Post, (in which
part of the territory he himself hunted) b white pine may be seen growing.
The only pine, however, that we observed nk of the river north of the long
rapid, was the Banksian pine This par itory is a net-work of lakes as far
north as the forty-ninth parallel, or some north of Flying Post, and I have
little doubt that more or less red and whi e found on the drier ridges and in
the sheltered hollows, and ravines border akes. It is the nature and charac-
ter of the soil and country rather than o which here limits the pine forests
to the territory lying south of the forty-

North of the forty-ninth parallel, in n lying between our eastern bound-
ary and Messinaibe River, the country i a consequence of this and the pre-
valence of a clay soil or subsoil, the nat is imperfect, and the surface wet.
These conditions favour the production or bog-moss, the long continued
growth and decay of which has produce s or muskegs, which cover the far
greater part of the territory in question. at bogs (till drained) neither pine
nor any other timber can grow.

The other trees found in the regi een the Height of Land and the
forty-ninth parallel are spruce, balsam, n pine, and tamarac, all of which
attain good useful sizes. Among leaf- duous trees, again we have white-
birch, poplar, aspen, alder, willows, black ash, and a few maple, elm, and black birch. The three last, however, are neither numerous nor of large size.

I need not reiterate what I have said in former reports in reference to the timber in the northern part of the territory. Having, however, on our return from Moose Factory followed another and little known route, some fifty miles to the east of that by which we went, it will be proper to give here a description of the timber met with in the region thus passed through, more particularly the pine timber.

Ascending the Mattagami Branch of the Moose River, the first pine met with was a red pine, on the east side, a little below the Sturgeon Falls, and about seventy miles north of the Hudson Bay Company's Post at Mattawagamingue. Mr. Austin, C.E., when engaged in running one of the lines for the Canadian Pacific Railway, calculated the latitude of this post to be 47° 53′. Thus it would appear, as previously noticed on the Ahkuckootish, that on or about this meridian, the forty-ninth parallel of latitude is the extreme northern limit of the red and white pine. About fifteen miles above this, at the Whistling Rapid, both red and white pine may again be seen. The largest red pine was eight feet in circumference at the butt, say four feet from the ground. The white pine were smaller, the biggest of them measuring about six feet in circumference. No more pine worth mentioning is met with on or near the banks of the river until we reach Lake Kenogamissee, on the upper or southern half of which there must have been a valuable pinery thirty or forty years ago, before the occurrence of the bush-fires which have destroyed so much of it. There still remains no inconsiderable quantity of white pine. Some trees that I measured were from eight feet to nine feet in circumference, and well-grown. Red pine is also found here, but the trees are fewer in number. The Banksian pine is common, and grows to a large size. From the upper end of Lake Kenogamissee, however, through Lake Mattagami to the Hudson Bay Company's Post (Mattawagamingue) red pine predominates, and is the most common timber where bush-fires have not recently passed over the ground. It is not generally, however, so large as on Kenogamissee Lake, although large enough to be quite merchantable, were it only conveniently situated in respect of markets. The soil here is, as stated elsewhere, light and sandy.

Pursuing our journey southward, about nine miles from the Post brought us to the end of Lake Mattagami. From thence a portage one and a half miles in length led us to a small Lake, ending at another portage nearly half a mile long. Crossing this we came to a lake nearly four miles in length. Arrived at the southern extremity of this lake, another portage, half a mile in length, had to be made. This portage terminated at a lake six miles across, called Round Lake. From this lake a portage, nearly two miles in length, was again necessary. We then found ourselves beside a low, marshy lake, through which and a little creek we worked our way with some difficulty for three-quarters of a mile, to a beaver dam. From this another portage, one mile long, the fifth since we left the post, brought us to the Mattagami River, which we had not seen since we entered Lake Mattagami, sixteen miles below Matawagamingue Post. Our course thus far has been on the whole nearly south. We might have arrived at this same point by ascending the river itself, which enters Lake Mattagami some four miles or so south-west of the Company's Post. It is said, however, to be not only much longer but much more difficult. The distance by the route we pursued is, I think, about twenty-six miles. The ascent in this stretch is roughly estimated at 250 feet. The stream, in its course from this point to the lake, must be joined by some one or more large tributaries, as the quantity of water is very small compared with that which flows from Lake Mattagami.

We now ascended this stream for several hours in a westerly direction. It runs through a marsh and is very crooked. About seven miles on this course brought us to a ridge of rock and rapids, where another, the sixth portage, was necessary. The rise here is at least thirty, or perhaps forty feet. Still ascending the river, our course was now south-westerly for about six miles, in which distance we made another portage (the seventh). The rise here was about twenty-five feet. We now entered and traversed Lake A-jau-ne-gam-ing, the length of which is about seven miles, and breadth from a quarter of a mile to a mile. The course or bearing of the longer axis is nearly due south. Two short portages and a like number of little lakes or ponds, covering in all a little over a mile and a half, running south from the southern extremity of Lake A-jau-ne-gam-ing, brought us to the tenth or Height of Land Portage, on which is the summit or watershed. Of the two little ponds at either end of this portage, on nearly the same level and not more than 500 yards apart, the waters of the one flow northwards down the Mattagami and Moose Rivers into the far distant Hudson's Bay, and those of the other find their way down the Monabing, Vermilion, and Spanish Rivers, of which this little pond is the fountain head, into Lake Huron. This watershed is, I think, rather higher than that between the headwaters of the Missisagua and Ahkuckootish Rivers, being probably 1550 or 1600 feet above the level of the sea, or say about 1000 feet above Lake Huron.

[illegible] swampy and marshy ground, and these drier ridges [illegible] red and white pine were seen throughout the [illegible] There were patches and [illegible] of good size and [illegible] portage passed over after we left Lake [illegible] for red or white pine, the shores being [illegible] again there is good pine, particularly [illegible] the Indians [illegible] a little to the [illegible] good pine of both varieties in considerable [illegible] Height of Land.

[illegible] Because pine [illegible] the more valuable red and [illegible] for existence [illegible] in the [illegible] of trees which, of all competitors, possess, as [illegible] to the climate, soil, and other [illegible] conditions [illegible] particular plant or tree [illegible] exclusively a certain area [illegible] perfectly adapted to the essential conditions of existence [illegible] than any other plant or tree with which [illegible] But it proves no more than that [illegible] the next in the order of fitness, [illegible] of trees and plants, all of [illegible] of existence, but all of which [illegible] and animals is far from being a [illegible] at least a certain degree of fitness if [illegible] instrument, the "balance" by [illegible] may be turned either one way or the [illegible] obscure or minute as to be almost, if [illegible] The [illegible] difference in the composition, the [illegible] or even in the colour of the [illegible] or insect, the absence or presence [illegible] the protection of some plants or trees [illegible] of their seeds. These and such- [illegible] and its inhabitants.

[illegible] that whereas the existence [illegible] certain portions of this territory is [illegible] and other conditions within such [illegible] of the absolute unfitness of such [illegible] soil to grow these valuable trees, [illegible] are a little better adapted to [illegible] naturally such other plant or tree has [illegible] constitute the fitness of a territory [illegible] to one, are not unchangeable. [illegible] ough in many cases slowly changing, [illegible] in our forests.

[illegible] ed, and that to such an extent as en- [illegible] several generations. We will take [illegible] agents in the accomplishment of [illegible] claimed by Ontario on both sides [illegible] times past chiefly, if not entirely [illegible] present century been over-run by [illegible] all the pine timber, and with it more [illegible] of the soil. I have no doubt that over large areas even the seed perished. As [illegible] of these altered conditions, quick-growing but comparatively short-lived trees, and those whose seeds are capable of being brought from a distance by the wind or by birds, have been the first to spring up and gain possession of the soil. Thus in passing through this part of the territory we frequently see nothing for miles but aspen, poplar, birch, alder, willows, and such like, where fine large pine trees once flourished, and [illegible] will, in my opinion, undoubtedly grow again.

I have in the course of former explorations found pine growing at the lower or north-western end of Lake Abittibi to the east—and at the lower or north-eastern extremity of Brunswick Lake on the west. This year it was met with both on the Ah-kuc-koo-tish River and the Mattagami River, nearly as far north; and I feel convinced that in all the territory lying to the south of the forty-ninth parallel red and white pine will not only grow but grow well. If I am correct in this opinion, the area of the pine growing region north of the Height of Land and east of the eighty-fourth meridian is not less than twelve thousand square miles. Making every allowance, therefore, for the surface covered by lakes, swamps and marshes, such a vast public domain even for its forests alone cannot fail to prove of very great value to our Province.

North of the forty-ninth parallel, large spruce may be seen scattered along the banks of the rivers all the way nearly to James' Bay. But the larger trees are confined to a narrow belt, and while they will be valuable in the future for local purposes, I do not think they are of much economic importance at present. Owing to the fact that north of the forty-ninth parallel the land, a few hundred yards only from the rivers is generally covered with sphagnum moss and peat, which increases in depth as we recede from the bank, nine-tenths of the spruce and tamarac are small and utterly worthless for any purpose that I am aware of, unless it might be for coal pit props.

But there are very large quantities of aspen which, cannot fail I believe to prove of considerable value when the territory is opened up, for the manufacture of paper. On the lower part of the Mattagami I have counted as many as thirty aspen trees running from twenty inches to forty-two inches in circumference, with a circle twenty yards in diameter. The aspen is generally found on the best land, and occasionally attains a circumference of fifty or even sixty inches. Cedar and tamarac of a size suitable for railway ties will be afforded in large quantities by the southern part of the territory, and should, I think form an item in estimating its future value The balsam attains a good size and is found scattered in considerable numbers throughout nearly the whole territory. White birch, or what Dr. Bell more properly calls canoe-birch, also grows everywhere on suitable soils, but is not so large in the northern as in the southern part of the territory.

Banksian pine, which I have hitherto called pitch or rough-barked pine, grows further north than either white or red pine, and also upon poorer ground. It is found principally in that part of the territory south of the fiftieth parallel, and although a few isolated trees or patches may be met with further north, I think this may be fairly assumed to be its limit in the region lying to to the east of the Missinaibi River. West of the Missinaibi, the growth not only of Banksian pine, but of red and white pine extends, I have no doubt, considerably further north. When ascending the Albany River a few Banksian pine were seen within one hundred miles of the Factory, at the mouth of the river. But strangely enough not another tree was met with in the next hundred miles, or until we reached Marten's Falls, latitude 51° 30′, after which it was quite common. Southward it extends all the way to Lake Huron. It does not generally exceed three or at most four feet in circumference. On an area so extensive, there must be in the aggregate a prodigious quantity of this timber. Although inferior to our hard woods, or even to tamarac, it forms, when dry, a superior fuel to either white or red pine, spruce, balsam or poplar. It is not worth much for any other purpose that I know of, but as it is capable of affording a large amount of resin one would think it might become valuable, possibly very valuable, some time or other.

In descending from the Height of Land to Lake Huron my route led me through unexplored territory lying north of the region which has been partly or wholly surveyed and divided into timber limits. It may not be amiss therefore to say a few words in reference to the "timber resources" of the Province south of the Height of Land, as any information however scanty on that subject is of importance, and can hardly fail to be interesting in view of the large revenue derived from that source.

The Height of Land Portage terminated, as already observed, at a little pond not more than one hundred yards across. From this a short portage (the first south of the watershed) brought us to the north end of a narrow lake, with good white pine on both sides. It proved to be about two miles long. Another portage, about one-third of a mile in length, took us to the small stream which flows from this lake. Following this for some three hundred yards, another portage about a quarter of a mile in length was rendered necessary by beaver dams and other obstructions. Embarking again on the same stream a like direction brought us to a narrow lake two miles in length on a southerly course. Here also there is a good sprinkling of white pine. Near the southern extremity we ascended a shallow tributary for four or five hundred yards, then made a portage to the left about two hundred yards to a small pond or lake. Crossing this, a very small creek led in a short distance to another and still smaller pond surrounded by muskeg and a cranberry marsh. Another portage one hundred and fifty yards or so in length now brought us to the upper or north end a fine large lake called Monabing. The route from the Height of Land to this point runs nearly south, and the fall is inconsiderable. The higher and drier ridges support, where not burnt, a good growth of white pine.

Monabing is from twenty-five to thirty miles in length in a north and south direction. Its average width may be two or three miles. Bush fires have destroyed a great deal of valuable timber on both sides of this lake which is as I have mentioned elsewhere the source of the East Branch of Spanish River.

Notwithstanding this, there still re quantity of red and white pine on the unburnt land. I measured a numbe d found that the red pine ranged from forty to sixty inches and the white rty-eight to one hundred and eight inches in circumference. The out-let of t t the south-eastern extremity and is called Monabing River. It is a very cr but the bends are short and alternately east and west of south. This las bearing or course of the valley or trough, and down it the river descends wi rrent and frequent falls and rapids for some thirty miles. It then enters o tively flat country, the current is more moderate and course very serpentine ls of ten miles, when it opens out into Vermilion Lake.

The country on both sides of the Riv has been covered with a fine growth of pine, and notwithstanding the destructi bush fires there is still a good deal of valuable timber of both kinds left in this the Province, which will be available at no distant day. The country border ermilion Lake, and the river below so far as I followed it, appears to have be y burnt over and the timber destroyed, but as we have now entered surv y further remarks are unnecessary.

I am not aware that any exploratior have been made for the Provincial Government north of the forty-seventh p ude, unless it be Messrs. Salter's and Sinclair's line before referred to, and the forty-eighth parallel, and for the most part north of the Height ere is, however, a large tract of country, partly in the District of Algoma n the District of Nipissing, of which comparatively little is known. It is sit the eightieth and eighty-fourth meridians of longitude and for the most the forty-seventh and forty-eighth parallels of latitude, and embraces prol usand square miles of land. This belt lies adjacent to, and immediately to that which is the subject of this and previous reports. Having had occasior country at several points on my voyages to and from the north, I have portunity perhaps than any other provincial officer of forming an opinion s value and resources in respect of its timber. To this opinion, whatever i th, the Government is justly entitled. I may premise what I have to ect with the remark that the two factors which chiefly govern the distrib are climate and soil. Now as regards the climate of this section of cou e no doubt whatever that it is altogether favourable to the growth of pine of the region in question. I have shown in this and previous reports that large white pine from eight to twelve feet in circumference, are to be seen growing north of the Height of Land to the forty-ninth parallel, or from seventy to a hundred miles north of any part of the district now under consideration. As regards the soil, that too, with trifling exceptions, is, I believe, of a character entirely favourable to the growth of red or white pine. The soil of by far the greater portion of this region, particularly on the ridges, consists for the most part of the sands (frequently more or less argillaceous), gravels and boulders of the drift-period or formation. Often a yellowish or brownish sandy loam, and more or less mixed throughout this, stones and boulders of all sizes. In this soil, however stony it may be, pine obtains what is primarily and absolutely indispensable to its growth and existence, namely, a firm hold for its roots. Without this the pine, more particularly the white pine, cannot possibly arrive at maturity or attain a large size, for the height it reaches to and the surface it exposes to the wind are such that it must otherwise inevitably be blown down and thus perish. I would say, judging from my own experience, that more than three-fourths of all the pine in the Province grows on the not greatly altered soils of the drift or boulder formation, that it is in fact the soil of all others most favourable to the existence of pineries.

Having thus shown that both soil and climate are well suited to the growth of this valuable tree, I may now add that the timber itself found growing in this district wherever I have been, fully substantiates this opinion. On ridges that have escaped the bush fires I have measured many white pine trees in this region which were from six feet to ten feet in circumference, seemingly sound and good, and as many in some places as ten or fifteen such trees per acre. The size of the red pine, of which in some sections there are considerable numbers, runs from thirty to fifty inches, although sixty inches circumference is by no means uncommon. Even on the burnt land the remains in many instances clearly prove that the original forest, before it was destroyed, consisted largely if not entirely of pine. To estimate the relative proportions of burnt and unburnt land with any approach to accuracy is quite impossible without a thorough examination of the whole region. I am of opinion, however, that as seen on the routes I have travelled, from one-half to three-fourths of the timber has been burnt within the last fifty years. As observed elsewhere, however, I think it exceedingly probable that in those sections which are the most remote from ordinarily travelled routes, (and of which the least is known) will be found a larger proportion of unburnt land and consequently a greater quantity of pine. But even if this expectation should not be realized, the aggregate quantity of pine still remaining in this extensive territory, embracing as I said before probably eight thousand square miles, is undoubtedly very large, and however scattered or remote, will in view of the opening up of the country by means of railways, and the increasing demand for pine, prove of great value to the Province. I must not, however, be understood as contending that the finest pine, either in respect of size or quality, are now growing or may ever be expected to grow in the extreme northern part of the territory I have described as "the pine growing region." Climate undoubtedly draws the line somewhere, beyond which neither red nor white pine can grow, and as we approach this line, whether it be when ascending to greater heights, or in travelling northward, common sense would lead us to expect some falling off in the size and quality of the trees before they disappeared altogether. Such undoubtedly would be the case but for another factor, also before referred to, which if not so obvious as soil and climate yet plays a very important part in the distribution of our forest trees—and that is the competition or rivalry of other trees or plants struggling to obtain possesion of the soil.

This factor exercises, I believe, a powerful influence in respect of the distribution of pine. Compelled to struggle for the possession of the soil with spruce, banksian pine and other trees, no sooner does the vigour of the red and white pine begin to be in the least impaired by adverse conditions, such as the increasing coldness of the climate or some slight change in the soil, than they are in danger of losing their supremacy, and succumb long before the extreme limit imposed by climate and soil alone is reached. Hence it is, I think, that in the territory north of the Height of Land, we find white pine from six to eight feet and red pine from four to six feet in circumference, apparently sound and healthy, a few miles south only of where they disappear altogether.

It is more than probable that although the climate for possibly one hundred miles north of the 49th parallel, and in many places the soil also might have admitted of the growth of inferior red and white pine, yet at this particular point the loss of vitality and vigour was such as to decide the struggle in favour of spruce, tamarac, banksian pine, balsam, aspen, birch, poplar, or other competitors, and by one or other of these the red and white pine have been at once supplanted.

It is only right to mention in what I wish to be a fair report on the value and resources of this territory, that the pine north of the Height of Land, notwithstanding its large size and healthy appearance, shows signs of some such deterioration as is here alluded to. For instance, although the girth of the pine at the butt-end, say three or four feet from the ground, is large, the height or stature of the trees is considerably less and the taper as a necessary consequence more rapid, than in the well sheltered valleys and ravines south of the Height of Land. Again, I think there is in the north a greater proportion of the large trees more or less hollow or unsound at the butt-end. And, thirdly, what are called "shakes" are said to be more common in the boards or lumber manufactured from this pine. I make the last statement on the authority of Mr. Rae, the officer in charge of Matawagamingue Post, and it may apply only to the pine timber growing in that section of the country. The other facts have fallen under my own observation.

MINERAL RESOURCES.

The explorations of Dr. Bell, Assistant Director of the Geological Survey of Canada, and myself, go far to prove that this territory is of very considerable value and importance for its minerals alone.

In previous reports attention has bee the deposits of lignite or brown
coal, iron ore, kaolin or china-clay, and plaster of Paris; also to the inex-
haustible beds of peat in this territory.

In addition to the above, I have dis season both galena or lead ore,
and copper, together with abundance of d brown ochres. I also succeeded
in finding a bed of lignite coal on the Ma uth branch of the Moose River, on
which hitherto no coal had been found in

I met with the lead and copper ores vest side of the eastern arm of Lake
Matagama, in the vicinity of Flying Post. of ore in the veins, where exposed, is
not such as would justify, in my opinion, ing operations, but sufficient taken
in connection with the size and general c e veins to warrant careful explora-
tion, in the reasonable expectation that la of these useful and valuable metals
may be discovered. It is said that one o ngaged on the survey for the Cana-
dian Pacific Railway, discovered silver or hborhood of Flying Post. I think
it likely, however, that the ore thus found e," rather than silver. Galena, the
most common ore of lead, almost invari more or less silver, sometimes in
quantities barely sufficient to pay for ext others so rich as to entitle the ore
to be classed as "silver-lead." The roc in which these veins occur belongs
to the Huronian system.

The yellow ochre crops out on the f the Mattagami River, about a
quarter of a mile below the north end o ge, and at the same place may be
seen a fine white clay, strongly resemb lay already referred to as having
been found by me two years ago on the nch of Moose River. My attention
was first drawn to this ochre by the Rev of Matawagamingue. I after-
wards learned that Mr. Rae, the officer i t post, was aware of this deposit
also, and that he had even tried some of nd found that it answered for that
purpose remarkably well. Another de ochre crops out on the west side of
the river, about half a mile below the u Grand Rapid. This is if possible
of a still finer quality than that below ge. Here again this ochre is asso-
ciated with the fine white clay before a wn ochre occurs abundantly along
with the iron ores which are seen in suc ies at the Grand Rapid. Both
these ochres may be valuable as paints.

The lignite or brown coal occurs on of the Mattagami River about five miles below Long Portage. It is only exposed in the banks for a few yards in length, and the bed was so nearly covered with water when I found it that the thickness could not be ascertained. The quality of the specimens obtained was good considering that they came from the out-crop. If there should prove to be a large quantity of this coal here it can hardly fail to become valuable in connection with the deposits of iron ore at Grand Rapid, only a few miles lower down.

I have no doubt whatever as soon as this territory is rendered accessible to practical *explorers* and means of transportation provided, that other interesting and valuable discoveries will be made, that mines and smelting works will be established, and that the minerals of the territory will not be the least important of its products.

Dr. Bell, speaking of the mineral resources of Hudson's Bay, says—Report of Progress for 1879-80, see p. 32; "Minerals may, however, become in the future the greatest of the resources of the shores of Hudson's Bay. Little direct search has been made, as yet, for the valuable minerals of these regions. In 1875 I found a large deposit of rich ironstone on the Mattágami (see Geological Survey Reports for that year). In 1877 inexhaustible supplies of good manganiferous iron ore were discovered on the islands near the East-main coast, and promising quantities of galena around Richmond Gulf, and also near Little Whale River, where a small amount had previously been known to exist. Traces of gold, silver, molybdenum and copper were also noted on the Eastmain coast. Lignite was met with on the Missinaibi, gypsum on the Moose, and petroleum-bearing limestone on the AbittibiRiver. Small quantities of anthracite, and various ornamental stones and some rare minerals were collected in the course of our explorations around the bay. Soapstone is abundant not far from Mosquito Bay on the east side, and iron pyrites between Churchill and Marble Island on the west. Good building stones, clays and limestones exist on both sides of the bay. A cargo of mica is said to have been taken from Chesterfield inlet to New York, and valuable deposits of plumbago are reported to occur on the north side of Hudson's strait. Some capitalists have applied to the Government for mining rights in the latter region."

In my Report for 1880, p. XI, *et seq.*, the importance to the Province of an abundant supply of cheap fuel was discussed at considerable length. It was shown that wood must, necessarily, become scarcer and dearer; that we are already obliged to import very large quantities of coal, both for domestic use and for manufactures; that the distance from the coal-mines of Nova Scotia was such as to afford no reasonable prospect of our being able to obtain coals from that quarter at other than exhorbitant prices; that we were, in fact, dependent upon the United States for our supply of one of the most indispensible necessaries of life. I might have added that in such a climate as ours, dependence on a foreign power for fuel, places us almost entirely at their mercy.

It was shown, however, that in the so-called disputed territory there is an almost unlimited quantity of fuel, partly in the shape of seams of lignite, or brown coal, but chiefly in the form of great beds of genuine peat.

I quoted from various authorities, but more particularly from Dr. Sterry Hunt, facts which conclusively prove the importance and value of peat as a fuel, even when it contains as much as forty-five per cent. of water. It was further shown that with cheap transportation by rail or otherwise, charcoal made from compressed peat might be delivered in our cities at prices that would render the inhabitants in a great measure independent of foreign supplies of fuel, at least for domestic purposes.

In last year's Report, p. 11, I again reverted to this important subject, showing that even at the lowest estimate the heat-giving power of the peat-beds in this territory is so enormous as to be almost incredible, and expressing an opinion, that before another fifty years have elapsed, this bountiful provision of fuel will, by means of electricity or otherwise, be made to contribute in no small measure to the welfare and comfort of the people of this Province. Since I thus wrote, some progress has been made in this direction. Experiments on a large scale are, I believe, being conducted both in Europe and America, the object of which is to substitute electro-magnetic engines for ordinary locomotives on railways. I am not conversant with the details, but as I understand it, the electric fluid is generated or supplied by stationary engines at each end of the line, if short, but at stated intervals if the road is long. The engines that generate the electricity, which in turn propels the train, may themselves be worked by steam or water. These stationary engines too, may be many miles distant, not only from the train and its load, but, if desirable, from the railway itself. All, I believe, that is really essential being, that the electricity thus generated shall be conducted without material loss or waste by means of wires or otherwise, from the stationary engine to the electro-magnetic engine which accompanies the train; or the electricity may be stored according to M. Faure's method, on the point of being patented and introduced into Canada.

If this system be at all successful, in an economic point of view, with stationary engines worked by steam, the problem of the utilization of the vast stores of peat and lignite in this territory is, I am persuaded, in a fair way to be solved. The Height of Land is an extensive plateau, and not a sharply defined ridge. This plateau is full of lakes each giving birth to streams of water which, uniting, soon become rivers. Some of these flow to the north and others to the south. This plateau is from a thousand to twelve hundred feet above the level of the sea; and from five to seven hundred feet above Lake Huron. Hence the rivers for many miles on both sides the Height of Land offer a succession of rapids and falls. These afford water powers, the equal of which cannot, in my opinion, be found on this continent, if in any other part of the world. The lakes by which the streams and rivers are fed constitute, in fact, great natural reservoirs, by means of which a constant and steady supply of water, *at all seasons*, can be easily ensured. It is obvious, therefore, that if this method of propelling or drawing trains should prove successful, the *motive power* necessary to transport fuel from the north to our very doors would cost literally nothing but the machinery required to apply it to that purpose. Such a reduction in the cost of transportation as this presupposes, would probably enable us to obtain abundant and cheap fuel for generations to come from our own territory.

Even admitting that such a consum … ur hopes is *only a possibility*, yet
in a matter of such vital importance the … ould relinquish no claim, much less
give up its right to this disputed territo

OTH

When the territory is opened up, ot … will no doubt be found well worthy
of the attention of our people. Some of … s the porpoise, seal and salmon fish-
eries, might be said to be more properly … f Hudson's Bay itself, than of the
territory claimed by us. This is quite … s not less true, that if the Province
of Ontario embraces (as under the award … rators it does embrace) a consider-
able frontage on the coast, our people wil … directly and to a much greater ex-
tent in the benefits and advantages of th … nmerce and resources generally, of
this great inland sea than they can possib … do if deprived of that frontage and
the frontier arbitrarily fixed some hundre … ore distant from the coast. Hence
our Province has a very material interest … rces of Hudson's Bay.

As my own explorations have been … onfined almost entirely to our own
territory, the following quotation from … rt before referred to, will be more
to the point than anything I might be ab … m hearsay.

In Report of Progress for 1879-80, … 32, Dr. Bell says, "The resources of
Hudson's Bay and the country immediat … are varied and numerous, although,
as yet, few of them are at all developed. … de is the principal and best known
business which has hitherto been carried … regions; but a considerable amount
of oil, derived from the larger whales, … walruses, white bears, and various
species of seals which frequent the no … the bay, has been carried to New
England, and small quantities, principa … and seal oil, have from time to time
been taken to London by the Hudson … The trade in oil might be greatly
extended in these quarters. Other arti … exported from the bay, but hitherto
only in trifling quantities. They embr … feathers, quills, castorine, lead ore,
sawn lumber, ivory, tallow, isinglass, … eals and porpoises. The fisheries,
properly speaking, of Hudson's Bay, ha … vestigated. Both the Indians and
Eskimo find a variety of fish for their … ine salmon abound in the rivers of
Hudson's Strait. From one or two of them a considerable number of barrels, in a salted condition, are exported every year by the Hudson's Bay Company. Water-fowl are very numerous on both sides of the bay, and larger game on the barren grounds in the northern parts; so that the natives, with prudence, may always have a plentiful supply of food. But perhaps the most important of the undeveloped resources of the country around the bay are its soil, timber, and minerals. To the south and south-west of James' Bay, in the latitude of Devonshire and Cornwall, there is a large tract in which much of the land is good, and the climate sufficiently favourable for the successful prosecution of stock and dairy farming. A strip of country along the east side of James' Bay may also

prove available for these purposes. To the south-west of the wide part of the bay, the country is well wooded, and, altogether little or no rock comes to the surface over an immense area, still neither the soil nor the climate are suitable for carrying on agriculture as a principal occupation until we have passed over more than half the distance to lake Winnipeg. This region, however, appears to offer no engineering difficulties to the construction of a railway from the sea-coast to the better country beyond, and this, at present, is the most important point in regard to it. Some of the timber found in the country that sends its waters into James' Bay may prove to be of value for export. Among the kinds which it produces may be mentioned white, red and pitch pine, black and white spruce, balsam, larch, white cedar and white birch. The numerous rivers which converge towards the head of James' Bay offer facilities for "driving" timber to points at which it may be shipped by sea-going vessels."

Development and Settlement.

The efforts made to bring immigrants into the country from any quarter of the globe, without the least discrimination in regard to race, moral fitness, or otherwise, is, I fear, a mistaken policy; but one, the result of which may not become immediately apparent.

As regards this territory, the settlers must be in my humble opinion, chiefly Canadian and American, or at all events old-country men, who have served an apprenticeship in Canada or the United States. Men who know what the resources of a country are, and how to take advantage of them. Inexperienced immigrants from Europe will not succeed.

It may be said, and very truly said, that native Canadians or Americans will not settle in this territory, at least in any considerable numbers, nor immediately; in fact so long as they can obtain better land and a finer climate elsewhere. If not, we have only to wait a while, and they will go by and by without much begging. In the meantime, settlement is impossible until the territory is accessible either from the north or the south.

As is well known the Honourable Hudson's Bay Company have conducted their fur-trade in this territory for two hundred years by means of the ocean, and the Hudson's Bay, their ships making annual voyages from London to York Factory and Moose Factory, and returning again the same season. The importance of this ocean route, to and from Europe was pointed out in my first report, p. 41, 42, to which I may refer: A great deal of discussion has taken place both before and since on the subject, and some two years ago Dr. Bell, of the Geological Survey, made the voyage from York Factory, through Hudson's Straits to London, England, in order to be able to form an opinion on the feasibility of this route, not only for the traffic which the territory immediately bordering on the bay itself may afford, but for the produce of the North-west. Dr. Bell treats this subject very fully and with his usual ability in the report already referred to. The establishment of a line or lines of steamers to Europe, whether from York Factory or Churchill, could not fail greatly to encourage settlement and promote the development of all the resources of the country bordering on Hudson's and James' Bays, and I therefore feel quite justified in quoting at length from this interesting report, in which on p. 32, C. *et seq.*, Dr. Bell says: "Situated in the heart of North America, and possessing a sea-port in the very centre of the continent, one thousand five hundred miles nearer than Quebec to the fertile lands of the North-West Territories, Hudson's Bay now begins to possess a new interest, not only to Canadians, but also to the people of Great Britain, from the fact that the future highway between the great North-West of the Dominion and Europe may pass through it. The possibility of this route being adopted for trade is not a new idea. It has been frequently suggested by far-seeing men in past years, and occasionally referred to in newspapers. In 1848 the then Lieutenant M. H. Synge, in his work on Canada, wrote: 'A ship annually arrives at Fort York for the service of the Hudson's Bay Company, who can tell how many may eventually do so?' The journal of the Statistical Society of London, for March, 1864, contains a paper by H. Y. Hind, on 'The Commercial Progress and Resources of Central British America,' in which the writer says: 'It is more than probable that whenever the necessity arises, the communication between

Winnipeg and Hudson's Bay, and thence to the Atlantic, by the aid of steamers, will be made easy and speedy for at least three months in the year.' In 1876, Mr. Selwyn brought the subject officially before the members of the Canadian Government, and recommended that surveys be made of Hudson's Bay and Strait. In 1878, Colonel Dennis published a pamphlet, accompanied by a valuable map, in relation to it.

"The report of the Minister of the Interior, for 1878, contains an appendix by the writer on the practicability of building a railway from Lake Winnipeg to Hudson's Bay. During the session of 1878-79, and again the following year the Honourable Thomas Ryan, a gentleman of great enterprise, brought the matter under the notice of the Dominion Senate.

"In 1880 the Parliament of Canada granted charters to two companies for constructing railways and otherwise opening a route for commerce from the North-West Territories to Europe, via Hudson's Bay, and during the past year one of them, the Nelson Valley Company, caused a survey to be made of a part of the distance between Lake Winnipeg and the Harbour of Churchill. Their chief engineer has reported the route as far as he located the line, to be an easy and inexpensive one for a railway. The directors of the company have again sent an engineering ield to carry on the survey during the present year (1881). This company power of connecting with the Canada Pacific Railway in the Saskatchewan he main line is intended to form a connecting link between the great syste navigation, which centres in Lake Winnipeg and the sea. If constructed, lley Railway may carry to the seaboard, not only the surplus grain and own North-West, but also that of Minnesota and Dakota. Lieutenant-Ge H. Lefroy, President of the Geographical Section of the British Associat lress at the Swansea meeting (1880) said: 'Hudson's Bay itself cannot fail, day, to challenge more attention. Dr. Bell reports that the land is rising a ive to ten feet in a century, that is, possibly an inch a year. Not, however, unt will the hydographer notice it; but because the natural seaports of that ior, now thrown open to settlement, Keewatin, Manitoba, and other provin must be sought there. York Factory, which is nearer Liverpool than Nev een happily called by Professor H. Y. Hind, the Archangel of the West. the Churchill, however, although somewhat further north, offers far super lvantages, and may more fitly challenge the title. It will undoubtedly be pping port for the agricultural products of the vast North-West Territory, by which immigrants will enter the country.' Sir Henry Lefroy, being per cquainted with Hudson's Bay and the North-West Territories, may be ac authority on the subject. It has been shown that the Canadian North-W embracing hundreds of millions of acres of fine land, are destined to beco st wheat field in the world. The centre of this immense agricultural regi s to the north of the Saskatchewan. If we look at the map of the norther we shall see at a glance that the shortest route between these territories through Hudson's Bay. Mr. Lindsay Russell, the Surveyor-General, has a close calculation of relative distances, and finds that even the city of h is situated in the extreme south-eastern part of these territories, is at ndred miles nearer to Liverpool by the Hudson's Bay route than by the St. ile the difference in favour of the former will be increased continually as rthward into the interior.

"If we take a central point of the ricultural lands of our North-West Territories, say in the neighbourhood o ongitude 112° W., latitude 55° N., we shall find that the distance from it Winnipeg is about the same as to Churchill, on the Hudson's Bay. The distance from the latter to Liverpool is about the same as from Montreal to this port; so that between the above-named centre and Liverpool, by the Hudson's Bay route, the whole distance from Winnipeg to Montreal is saved. This amounts to one thousand two hundred and ninety-one miles by way of Lake Superior, and one thousand six hundred and ninety-eight miles by the Chicago route. The distance by way of New York is still greater than by Montreal. The advantages of this route over all others are numerous, and a few of them may be here referred to. The great saving in distance represents an important economy in time and money, or in freights and passenger rates. If the grain, cattle and other products of the North-West Territories could reach a European market only through Ontario and Quebec, or by way of New York, a large proportion of their value would necessarily be consumed by the long land carriage; whereas, if they can find an outlet at Churchill or York Factory, there will be a saving of at least one thousand two hundred and ninty-one miles as compared with Montreal, and upwards of one thousand seven hundred miles as compared with New York, and this without increasing the length of the voyage. In effect, this will place a great proportion of the farms of our North-West Territories in as good a position with regard to sea-port as are those of Ontario west of Toronto, and consequently will greatly increase the value of every description of farm produce, and therefore of the farms themselves. Some kinds of produce which could not be sent out of the country at all by the longer land routes may be profitably exported by the shorter one. Owing to the short land journey, grain from the Saskatchewan and Peace River regions could be exported by way of Hudson's Bay the same year in which it is harvested, which could scarcely be hoped for if sent by way of one of the longer routes. For the transportation of both grain and fresh meat, as Colonel Dennis has pointed out, the northern route, besides the shortening of the distance, would have great advantages over all those to the south, owing to its cooler and more uniform temperature. Heavy or bulky goods of all kinds would of course be imported into the North-West Territory by the shortest land route. In regard to the export or import of live stock, this independent route will possess a great importance to these territories.

"Hitherto cattle, horses, hogs and sheep, have there enjoyed an immunity from almost all forms of contagious diseases, and owing to the very healthy nature of the climate for these animals, it is hoped this state of things will continue. The domestic animals in the United States and older Canadian Provinces being occasionally afflicted with contagious diseases, it becomes necessary for European countries to impose restrictions on their importation. In the event of an epidemic of this nature existing in some part of these regions, but not in the North-West Territories, there would be no objection to exporting live stock from the latter by way of Hudson's Bay. As a route for emigrants from Europe, that by Hudson's Bay possesses not only the advantages of the short land journey, but the still more important one, to us, of entirely avoiding the United States and the populous parts of Canada, in both of which, it is well known, a very serious per centage of the immigrants destined for our North-West lands are every year enticed away to settle in the great republic. An inlet by Hudson's Bay is the only thoroughly independent channel which can ever be established between Great Britain and the great and valuable British territories in the interior of North America; and it is very desirable, on national grounds, that this route should be opened up. Troops have hitherto been sent to the Red River settlement, on more than one occasion, by way of Hudson's Bay, while the intervening country was, as it is yet, in a state of nature. Were a short railway built through this tract, it would at once become for military purposes an easy connecting link with the mother country. An impression has long prevailed that Hudson's Bay and Strait could not be navigated for the ordinary purposes of commerce, on account of ice, but this idea is perhaps destined to prove chimerical. The occasion for testing the point had not hitherto arisen, and the fact that these waters have been successfully navigated by ordinary sailing vessels for nearly two hundred years, in order to secure the little trade the country has hitherto afforded, indicates what may be expected from properly equipped steamships, as soon as the larger business of the future may require their services in this direction. The conditions of the sea-borne commerce of the North-West in relation to Hudson's Bay may, after all, turn out to be somewhat similar to those of the east of Canada with reference to the Gulf of St. Lawrence. In both cases everything must be done during the summer. Yet, Hudson's Bay is, of course, open all the year round. A sea of such vast extent in the latitude of the British Islands would not be expected to freeze across, and as a matter of fact it does not. The lower St. Lawrence (notwithstanding its comparative narrowness) is also partly open, even in the middle of winter. But the difficulty in both cases is the apparent impossibility of getting into harbours. A harbour such as that of the Churchill on Hudson's Bay, would have the advantage over Quebec or Montreal of connecting directly with the open sea, and hence in the autumn vessels

would not be liable to be frozen in, as occasionally happens in the St. Lawrence, as for example in the autumn just passed, also in the autumn of 1870, when the outward bound shipping got frozen in below Quebec, occasioning a loss, it was said, of over a million of dollars. Again, in the spring there might be no more uncertainty about entering from the sea than in the Gulf of St. Lawrence, where vexatious delays are not uncommon after the open season is supposed to have arrived. Some discussion has taken place in the newspapers as to the length of time during which Hudson's Strait and Bay might be navigated each year, but there does not seem to be much evidence that the strait is entirely closed at any season, and the bay is always open. The great width and depth of the strait, and the strength of its tides, probably keep it open all winter. My own experience and that of many others leads me to believe that the climate generally of Hudson's Bay is much better than is popularly supposed. From all that I could learn or observe, there appears reason to believe that the strait and bay may be navigated and the land approached by steamships during an average of over four months in each year, or from the middle of June till near the end of October. The strait and bay might perhaps be navigated by steam vessels earlier than the middle of June, but nothing would be
gained, except perhaps by whalers, in goi an open harbour could be reached.
Much has been recorded in favour of t. inion, from the days of the Danish
Captain, John Monck, who wintered in o hundred and sixty-one years ago
(1619-20), to the present time, and a goc ecorded evidence which I have col-
lected leads me to the same conclusion. arbour does not freeze up until No-
vember, and the sea is open close to it dı le winter. A record of the princi-
pal phenomena of the seasons at Marti the Albany, extending through a
period of fifty years, shows that the river on an average for fully six months
of the year. In the Appendix will be ord of the opening and closing of
Haye's River, at York Factory for fifty-t ch proves it to have an annual aver-
age of six months' open water. The Nels a longer period, which may amount
to an average of seven months, but no ex been kept in regard to this stream.
The tidal portion is said never to set f nter more or less ice drifts up and
down with nearly every tide, the channe eing clear only after the prevalence
of strong winds off the land. During 1880-81 the river did not freeze
across at all for some forty miles above In view of such facts as the fore-
going, the navigation of Hudson's Bay a ich to land of steamships need not
be despaired off, as far as the length of se rned. Even were the time of open
navigation shorter than it is known to b at benefits which Canada generally,
and the North-West Territories in parti erive from possessing an outlet in
that direction are sufficient to make it v effort to open it up. The freedom
of Hudson's Strait and Bay from rocks, her impediments to navigation will
exempt vessels in that quarter of the heavy expenses for pilots, light-
houses, etc., which burden shipping to American ports. The delays from
drifting ice in the strait which have he ed to sailing ships, especially of the
old-fashioned type, cannot be fairly cit o what may be expected to be ac-
complished by well appointed steam ves res of Hudson's Strait are dry and
bold, and if observatory stations were me of the more elevated points on
either side they would command a com entire surface. By means of sig-
nals or telegraphic communication be tions in case of the existence of
drifting ice, vessels could be directed w llow in order to pass through it at
the easiest part, or to avoid it altogethe it that in proportion as the cost of
transporting farm produce to a foreign market is diminished its home value is correspondingly increased, and with it the value of the land itself, in about the same ratio. Now, considering the vast extent of the farming lands, to be favourably affected by the opening of the route above referred to, if the value of each acre of it were enhanced in this way by only seventy or eighty cents, the aggregate increase would amount to more than a hundred million of dollars. Such a gain as this, together with the great advantages which, as we have seen, may be derived from the opening of this new ocean route, should it prove feasible, will, I think, sufficiently show the importance of at least giving it due consideration. I am indebted to William Armit, Esq., the obliging Secretary of the

Hudson's Bay Company, in London, for the list in the Appendix showing the dates of the arrivals of the Company's ships at Moose Factory, and of their departure from that point, and to Mr. Chief Factor Fortescue, for the similar list in reference to York Factory. They show that very few interruptions have occurred in making the regular annual voyages to these ports during periods of one hundred and forty-seven and ninety-three years respectively."

Although the establishment of a line or lines of steamships to ply between England and Churchill or York Factory, will, if successful, do a great deal towards the development of the resources of Hudson's Bay and of the territory on or near the coast, the central and southern portion of the territory claimed by us can only be opened up, and its resources fully developed by railways. The period during which the Moose and Albany Rivers can be navigated is so short, and the navigating itself so bad, that heavy goods could not be sent inland to any point south of the long portages on the Moose, or Martin's Falls on the Albany, but at a very heavy cost for freight. During the greater part of the summer these rivers are too shallow to be navigable by anything but canoes or flat-bottomed boats of very light draft.

As regards the probability of the territory becoming accessible by railway, I may say, that it was thought to be at one time all but decided that the Canadian Pacific Railway was to cross the Height of Land on a course about north-nortwest from Lake Nipissing, and pass through the southern part of this territory at no great distance from Matawagamingue, Flying Post and New Brunswick, so frequently mentioned in this and former reports. This route is laid down on the railway maps, and called "Route No. 2, Report 1874." Last year it was stated that all idea of thus locating the route for the railway had been abandoned, and that it would be carried along the north shore of Lake Superior and south of the Height of Land, whatever the cost might be. This spring it was said that the route along the north shore of Lake Superior had been found to be all but impracticable, and engineers were sent up the Mississagua River, almost, if not quite, to the Height of Land, to find a route that way, the object being, as I suppose, to make the line from Lake Nipissing to Algoma Mills a part of the main line, instead of only a branch as originally contemplated. The engineers, I was told, were again disapointed in this route also. Finally, when I returned from the north I learned that a party had ascended the Wahnapitae River, as I presume to find a feasible route for the main trunk line, over the Height of Land, with the intention, most likely, of reaching and afterwards following "Route No. 2—Report 1874" above referred to—a route which has been, I believe, improved by the subsequent explorations of Messrs. Gamsby, Ramsay, Poulin and other Canadian Pacific Railway engineers and explorers.

I am of opinion, that if advantage be taken of the glacial troughs or channels (already alluded to) the Height of Land may be crossed at several points without very much difficulty. But in order to do this, the line must, I conceive, run *with* and *not across* these ice-formed troughs or channels, until it fairly emerges on the other (north) side, where at or about the junction of Laurentian and Huronion groups of rock, I believe it will be then possible to run the line westward without any such engineering difficulties as are met with on the south side of the watershed. The ice channels at or about the meridian of the source of Monabing and possibly of the Wahnapitae River also, run nearly north and south. I am inclined to think that to the westward of this meridian (81° 30′) the bearing of these troughs inclines more and more towards south-west and north-east, and on the other hand, or eastward, become more and more south-east and north-west. The idea does not appear to have occurred to the engineers or explorers of the Canadian Pacific Railway, that it might be very much better to follow two sides of the triangle, in order to surmount a serious difficulty of this nature, than rigidly adhere to the shorter and more direct hypothenuse, which from the physical and geological character of the country presented most formidable engineering difficulties ; or, if it did occur to them they were often, I suspect, too much hampered and bound by written instructions, to venture to make so great a deflection as was in this case necessary. The advantages however of lighter work, easier grades and a better route would far more than compensate both the Syndicate and the public for any increase in the length of the railway thus entailed. Not the least of these advantages would be, that by following this route the railway will be the means of developing the resources of this immense territory, the traffic of which will greatly exceed that which the north shore of Lake Superior is likely to afford. If the line however should be located south of the Height of Land, or as a "a lake shore line," the settlement of this territory will be delayed indefinitely. Ultimately, however, there is hardly a doubt that some other company will undertake to make a railway on this northern route, the effect of which must be to intercept and carry off from the Canadian Pacific Railway, not only the whole traffic of this territory, but of the Hudson's Bay itself, while to the south it would have formidable competition for the lake shore traffic, most of which would, in all probability, fall to the share of the steamboats plying on Lake Superior. With such a competing line of railway to the north and Lake Superior to the south, I fail to see what local traffic the Canadian Pacific could possibly obtain from its Lake Superior section, either now or in the far distant future. My own opinion is that in the interest of all concerned, the main-line of the Canadian Pacific Railway should be located to the north of the Height of Land, pass north of Lake Nepigon and join the Thunder Bay branch somewhere between Tache and Wabegoon stations. Ultimately, as population in the North-West increased, a branch would probably be made from the north end of Lake Nepigon to the north end of [illegible] peg, and crossing the Nelson River, might be continued up the North Saskat [illegible] nd, possibly, until it reached Peace River.

The Dominion would then have a *ba* [illegible] h appears to me absolutely indispensable, if we ever aspire to be an *inde* [illegible] ı, or even if we wish to remain as we are. As such a back-bone, however, [illegible] purposes, a railway running along the shores of Lakes Huron and Superio [illegible] r for the greater part of its length, in close proximity to the international b [illegible] terly and completely useless should our independence be at any time threat [illegible] south, the only quarter from which it is ever likely to be threatened at all.

A glance at the map must convince [illegible] ommon sense that communication between our capital, Ottawa, and our [illegible] n Provinces, might be interrupted with the greatest ease at many exp [illegible] efensible points on the projected route of our great national railway. T [illegible] d be borne in mind, namely, that this railway affords the only commun [illegible] e likely to have for many years, with Manitoba, Keewatin, and even B [illegible] ia. If in locating the route of this railway, so essential to the maintenance o [illegible] tion if not also of our independence, such considerations as national defence, [illegible] ms, military considerations, are entitled to no weight whatever, I cannot und [illegible] ssible plea or justification there can be for the heavy expenditure incurred i [illegible] of militia, volunteers, military colleges and such like, or indeed for makin [illegible] rior section of the road at all. With running powers sufficiently guaranteed [illegible] lines of railway south and west of Lake Superior to the boundary of Ma [illegible] t would be needed for many years to carry on the united trade, travel and [illegible] Montreal and Toronto on the one hand and Manitoba and the North W [illegible] r, is simply the extension of the Nipissing and Algoma branch of the C [illegible] Railway, from Algoma Mills, its present terminus, to Sault Ste. Marie, [illegible] Bracebridge to connect with the Canadian Pacific Railway at or about [illegible]

If, however, other objects than th [illegible] de and commerce imperatively demand consideration and attention, the [illegible] ly evident that the main trunk line of the railway should pass over the H [illegible] before it reaches Lake Huron, and follow some such route as I have indica [illegible] at step will have been taken toward the speedy development and settlement [illegible] y which forms the more immediate subject of this report, and its importance and value to the Province of Ontario will be greatly enhanced. Until this vital question is decided and our claim to the territory definitely settled, it is unnecessary to deal further with this branch of the subject.

In conclusion under this head, I may observe, that before my explorations in this territory, I fully believed that it would be better, if not obsolutely necessary, to locate the main-trunk line of the Canadian Pacific Railway south of the Height of Land and as near to the north shores of Lakes Huron and Superior as possible ; but a more impar*tial consideration of the* question, and fuller knowledge of the facts, convince me that

Mr. Sandford Fleming, ex-Chief Engineer, was quite right in projecting the line of the railway north of the Height of Land.

SOCIAL CONDITION.

In the first report which I had the honour to submit on this territory, the social condition of the natives was described at considerable length. With trifling and unimportant exceptions, the views and opinions then expressed have been confirmed by subsequent observation and experience. It is unnecessary, therefore, to go over the same ground again.

The population actually resident or domiciled in the territory claimed by Ontario, north of the Height of Land, cannot be very accurately ascertained, for reasons that need not be explained at length. I am of opinion, however, that the bona-fide population does no exceed two thousand five hundred.

This is a very small number of inhabitants for a territory, the area of which is equal to that of England and Wales. It is even to be feared that the native population, small as it is, will be further reduced when it has passed through the ordeal that inevitably awaits it when brought into more general intercourse and contact with our race. In addition to those who will fall victims to the intemperate use of alcoholic liquors, several of the diseases, such as small-pox—against which we take special precautions—and others, such as measles—which we easily get over—are very fatal to the Indians; the mortality in the case of measles being almost as great as in small-pox. Last fall and winter measles carried off a very heavy per centage of the natives at Long Lake and Missinaibi Posts, both in this territory; but fortunately it did not reach the posts on the coast of James' Bay.

Notwithstanding the smallness of the population, the food question is still by far the most important to the natives of this territory. Like all those who depend solely on hunting or fishing for their living, it is either "a burst or a starve;" too often the latter. In most countries it is over-population that leads to a deficiency of food and consequent famine. In this territory it arises rather from the great scarcity during the long winter months of those wild animals and birds which are capable of withstanding the cold, and of themselves obtaining food at that season. Among animals, the deer, bear, beaver, musk-rat, and rabbit are those on which the Indian chiefly relies for food. Of these, the rabbit, musk-rat, and beaver, are, in this territory, by far the most important. When rabbits are plentiful the Indians do not suffer for want of food, although the flesh of the rabbit is not very nutritious. But this animal, really a variety of "hare," is subject to epidemics or diseases, which periodically destroy them almost entirely; and after one of these plagues has passed over the country they are so scarce that every creature that is dependent, either wholly or in any considerable degree, on them for subsistence, suffers accordingly. Thus not only the Indian, but the lynx, fox, fisher, etc., among animals, and the owl among birds, suffer more or less from starvation and hunger, when the rabbit fails or becomes scarce. Rabbits have, unfortunately, been very scarce for several years, and a number of deaths from starvation have occurred among the Indians near the coast. Many more have barely escaped with their lives, and the suffering has no doubt been general and great.

At such seasons I believe the population would almost perish bodily, but for the beaver. This interesting animal is of greater value than any other to the native population of this territory. The meat is wholesome and good; and a full grown beaver, weighing say forty pounds, affords, after deducting offal, skin, and bones, as much probably as twenty-five pounds of actual food, besides the fur, the value of which often exceeds that of all the other furs trapped by the hunter added together. If sufficient numbers were left as a breeding stock, there is food enough in this territory for millions of beaver, but so little regard is paid to this vitally important point, that were it not for the extraordinary sagacity of the creature, it must long ere this have been almost exterminated. One of the officers of the Company told me that in the neighbourhood of his post there is a small lake or pond, the privilege of trapping in which he had acquired from the Indians, and, with a certain area of the country around, reserved for himself. In this pond lived a single pair of old beaver, which once a year gave birth to four young ones. For four years he had trapped the four young beaver, and the fifth year he had caught three, making in all nineteen beaver in five years from one pair. This was a remarkably good return, especially when we consider that they are entirely self-supporting, both summer and winter. But what I wish to remark more particularly in this connection is, that this gentleman frankly admitted he had been trying the whole time (five years) to catch the old beaver, but in vain ; for up to that period their extraordinary sagacity had enabled them to elude the traps to which their inexperienced offspring had regularly fallen victims.

It is not that in the whole territory the quantity of game, in the aggregate, is insufficient to maintain the wretchedly small number of inhabitants ; but that game is so scarce that the hunter, let him cover as much ground as his strength will enable him to do, cannot obtain sufficient day by day, during the winter season, to keep himself and family alive. Neither deer nor bear are at all numerous. Some few caribou and moose-deer are killed in the central and southern part of the territory ; but they are very scarce I think in the flat Muskeg region, near the coast. They are much more abundant on the Eastmain coast, and throughout the whole of the Labrador peninsula. The
moose-deer is only met with on or near t Land.

Of winged game ptarmigan and g alled partridges, are the only kind
which remain in the country during th ometimes the ptarmigan or white
grouse come from the north in conside s, and when they do so are a God-
send to the natives ; but they are by no ble source of food. The variety of
grouse most frequently met with, is wh "spruce partridge ;" although the
ruffed grouse or common partridge of sou is frequently seen in the southern
and central region. Both these varieties territory.

Wild fowl are obtainable in consider s in the spring and fall, especially
on or near the coast, but leave for the so inter sets in. Pigeons, unaccount-
ably to me, are very scarce in the terr are small birds of any kind at all
numerous, excepting on the coast and isla ay.

The fish in the fresh water lakes and r either so plentiful or good as south
of the Height of Land. In some few kind of sturgeon is caught, and is
good of its kind. Pike, however, and s hould say the most important as a
food supply ; the former, indeed, unde jackfish, being in many places all
the natives can get during the winter. lakes contain whitefish and lake-
trout ; the pickerel or doré is also caught rivers. These with a few speckled
trout, and in some places a variety of c rincipal kinds of fish in the interior
of the country. In the estuaries of th nd in Hudson Bay itself, there are
other species ; these, however, have bee ed by Dr. Bell.

On the whole the food supply is uncertain ; and seasons of plenty
bear, I fear, but a small proportion to t if not actual dearth.

It was stated in my first report on , that the only hope I entertained
of relief from this unhappy condition o s in the opening up of the country.
I am still of that opinion ; and this i why I am anxious to see the Cana-
dian Pacific Railway located as far n erests of our Province and the Do-
minion will permit. Even admitting ives may not nominally receive a
greater money value for their furs than i e Honourable Hudson Bay Company,
all the necessaries of life would cost t y much less than they now do, in
consequence of the cheapness of tra ompared with what it is by canoes.
Thus at inland posts, such as Matav Flying Post, they could give the
Indians twice as much flour, oatmeal, pork, tea, sugar, and such like, for their furs as they can possibly afford to do at present. Some of these Indian families (every member of which frequently traps and hunts) catch from two to three hundred dollars worth of furs in the season, and might live really very comfortably if the price of the necessaries of life were only moderate. I am satisfied too, that as soon as the country is opened up a very little encouragement will induce the natives to turn their attention to the cultivation of the soil and the keeping of cattle.

The Indians with their families generally gather at the Posts soon after the ice leaves the rivers, bringing the furs they have succeeded in getting during the winter. Most of the adle-bodied men are employed from one to three months during the summer, taking the furs to Moose or Albany factories, and bringing back the supplies needed at their own posts. These voyages or trips are usually made in canoes or boats. Sometimes this brigade, as it is called, consists of forty or fifty men. The brigade is accompanied by one or more officers and the white servants, usually Orkneymen, at the posts. The white servants and the natives work together, eat together, and associate together, on equal terms. Even the officers often take part in the conversation, and describe or explain to the Indians in their own language, matters which they would otherwise know nothing at all about. This association on their voyages and at the posts, continued year after year for several generations has, in my opinion, had a very important influence on the Indians as a means of education. The discipline, the steady labour, the necessity of working together for the attainment of a common object, are all calculated to teach them valuable lessons. They are, too, more or less keenly alive to the approbation or disapprobation of their officers and fellow-voyagers—a powerful incentive to good, and equally strong restraint from evil. Thus there is little or no shirking of a fair share of the labour, whether it be hauling, poling, paddling, or carrying on the portages ; but all seem to work together cheerfully, bearing heat or cold, rain or storm, and the incessant attacks of flies, with patience and fortitude. Either this or some other influence makes them generally honest, wonderfully forbearing towards each other in word and act, anything like quarelling being very uncommon. Watching, as I have sometimes done, when several of them were eating out of the same dish, I hardly ever noticed anything which appeared like greediness. On the whole they seem to be actuated by a feeling of fairplay which has not unfrequently excited my admiration. These lessons must have been learnt chiefly I think in the canoe and on the voyage; for at the inland posts to which I particularly refer, missionaries have had little opportunity of inculcating the principles of Christian morality. I think they are intelligent and teachable, and have formed a high opinion not only of the progress already made towards civilization, but of their capacity for further improvement; and I sincerely hope and trust that before long the opportunity may be afforded them of materially improving their condition.

Administration of Justice.

Situated as we are in reference to this territory, our Claim and the Award of the Arbitrators unacknowledged, without houses to live in, or a court to meet in; with neither constable or gaoler, or anyone in the territory that would be willing, probably, to act in either capacity; without a gaol or a lockup, and without the commonest means of travel, by which criminals could be safely sent four hundred miles to the nearest prison, I may say that I have looked forward, with a feeling of some uneasiness to the time when it might be absolutely necessary, cost what it may, in the performance of my duty, to commit some one to gaol.

The quiet and inoffensive character of the people on the one hand, and the great influence and control which the officers of the Honourable Hudson's Bay Company possess, on the other, enabling them as it still does to settle many little differences without appealing to the law ; together with the fact that the serious crimes which have occurred have been committed in territory out of my jurisdiction, have fortunately relieved me so far from this unpleasant necessity.

Even when our claim to the territory is acknowledged, and when every other arrangement is completed, it is certain that until the people have been in some measure educated to it, that the administration of justice must still be imperfect, owing to a reluctance on the part of the natives to lay informations, make complaints, or give evidence, even when they know of crimes which have been committed, or have been actually wronged or ill-treated themselves.

In the interests of good order and justice, however, I am persuaded that this unsettled and unsatisfactory state of affairs cannot be allowed to continue any longer.

I have now examined, and in this and previous reports have described as fully and fairly as I am able, that part of the so-called "disputed territory" lying on the north side of the Height of Land. These reports show :

That the climate is remarkably healthy, the cold in winter being not quite as severe as in most parts of the North-west, and the mean summer temperature sufficiently high to bring to maturity, in two-thirds at least of the territory, all the more important grain and root crops, if not flax, hemp, hops, and other crops of a like nature which are as yet untried.

These reports also show, that although a very large proportion indeed of the surface is covered with lakes, marshes, swamps, and particularly with "muskegs" or peat-mosses, there still remains a great quantity of land in this territory fit for settlement.

The soil is seen to present considerable diversity of character, varying in composition from stiff clay to light sandy loam; the former occurs more commonly near the coast and the latter on or near the Height of Land. The subsoil is found to consist in nearly every section of the territory of the marls, boulder clays, gravels and sands of the boulder or drift formation. That the underlying rock is fossiliferous limestone in the lower or northern part, Huronian and Laurentian in the central part, and Laurentian only on the Height of Land, excepting near our eastern boundary where rocks of Huronian age are found *in situ* on the Height of Land itself.

That the peat-mosses repose on a g subsoil of clay at such a height
above the rivers as to admit of very easy d that in consequence of this and
other exceptionally favourable conditions, robable very large areas of these
muskegs or peat-mosses may be reclaimed derate expense and converted into
fine pasture, if not into good arable lan le there is quite sufficient arable
land to grow bread-stuffs for the consumpt iderable population, it is doubtful
whether or not this will be a grain exporti

This will depend in a great measure on which may attend the attempts to
reclaim the land now buried under a greater or th of peat. The writer believes
that these attempts will be successful, and ct of these areas (and they are of
vast extent), where the covering of peat is an five or six feet in thickness, the
reclamation of such land is not only practic at the resulting soil, composed as
it would be of an admixture of peat-ashes with the underlying marl, could
hardly fail to be a fine wheat-growing soil. er hopeful conditions wanting, for
(in addition to the fact that the climate of basin of Hudson's Bay has in all
probability been slowly improving ever sin ating point of the Glacial Epoch,
and will in all likelihood continue to do centuries to come) we know that
the drainage of great tracts of country ex arkably favourable influence on
the climate, both as regards temperature a Thus it is to say the least quite
possible, that an intelligent, industrious, a people, aided by all the resources
that science, machinery, and wealth can f rotected by wise and just laws, in
the possession and enjoyment of the fruit our, such a people as we trust our
descendants will be, may yet reclaim and lmost unknown and despised ter-
ritory into one of the finest wheat-growi this continent.

In the meantime, however, it appear mixed system of husbandry will
be the most suitable to the earlier condit ntry, and that stock-raising and
dairy-farming will probably be the most ches.

As the breeding of cattle in the H Islands of Scotland, to be after-
wards sold and fattened in the south for arket has long been found profit-
able both to the breeders in the north eeders in the south; so likewise
may we anticipate that the breeding of c rritory, to be afterwards fattened
in southern Ontario, will be extensively great advantage to the people of
both sections of our province.

My explorations also enable me to say with confidence that the mineral resources of this territory promise to become of very great value and importance. Iron, lead and copper ores, china-clay, gypsum, and fine yellow and brown ochres have been already found, and this for the most part in great abundance. Lignite or brown coal has been discovered in seven or eight different places, and beds of this coarse but useful fuel are believed to underlie large tracts of country.

The peat-beds are so extensive as to be *practically inexhaustible*, and these together with the lignite will in all probability prove sooner or later of inestimable value as fuel, rendering the people of Ontario to a considerable extent independent of foreign sources for their supply of this indispensable necessary of life.

In the course of my explorations particular attention has been paid to the "timber resources" of this territory, and observations on this important subject will be found to occupy a prominent place in my reports. The general conclusions arrived at are :—

That east of the 84th meridian of longitude the climate not only admits, but is favourable to the growth of red and white pine of large size and good quality in this territory as far north as the 49th parallel of latitude.

That situated between the Height of Land and the 49th parallel, and between the 84th meridian and our eastern boundary, or say between the Missinaibi and Abittibi Rivers is a region embracing some six or seven million acres of this territory within which much of the soil is also more or less perfectly adapted to the growth of pine.

That, although bush-fires have within the last fifty years swept over the greater part of this region, the charred remains in many instances afford ample testimony to the fact that the former forests were composed largely of pine; and that the ridges and islands which have escaped these modern fires still bear considerable numbers of fine red and white pine.

That irrespective altogether of the value of the pine now on the ground, the *prospective* value of the timber which seven million acres of good forest land may be capable of producing by the unaided efforts of Nature alone, should be fairly taken into account, for if not to ourselves such a forest, more than royal in its dimensions, will surely prove a valuable legacy to posterity.

It will have been seen by those who have perused the narrative of my journeyings and explorations, that spruce, tamarac, canoe-birch, and aspen-poplar are found all over the territory. The spruce and tamarac frequently attain a good size and may come to be valuable for export. The aspen is rapidly assuming importance as affording material (pulp) well suited for the manufacture of some kinds of paper. It may well be that before long the aggregate value of these inferior kinds of timber of which there are such vast quantities, may greatly exceed that of the red and white pine, the growth of which is confined, as will have been seen, to narrower limits. The willow is found in every part of this territory growing luxuriantly. Whether the variety so useful for basket making could be successfully cultivated remains to be seen, but in my opinion it would succeed admirably on the river bottoms.

In conclusion, I have again to acknowledge the many obligations I am under for assistance rendered, and numerous acts of kindness shown by James L. Cotter, Esq., W. K. Broughton, Esq., and Dr. Haydon, at Moose Factory; Mr. Ray at Matawagamingue, and Mr. Thomas Moore at Flying Post; also by M. Matheson, Esq., in charge of the Hon. Hudson Bay Company's Post at Lacloche, as well as by Mr. Ross of Whitefish Lake, and Mr. Dyke of Mississagua. But for the friendly disposition of the Hon. Hudson Bay Company and its officers, and the assistance they have afforded me, I could not have made the explorations which form the subject of this and previous reports.

Respectfully submitted.

E. B. BORRON,
Stipendiary Magistrate.

DEC 8 1965